

**DEVELOPING A FIRE APPARATUS MAINTENANCE PROGRAM FOR THE  
WILMETTE FIRE DEPARTMENT**

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Certification Statement

I hereby certify that this paper constitutes my own product, that where language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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## Abstract

The current Emergency Vehicle Coordinator (EVC) for the Village of Wilmette Fire Department (WFD) was near retirement and there was no fire apparatus maintenance program succession plan in place which would lead to preventable maintenance costs and safety issues. The purpose of this research was to evaluate, make recommendations, and implement a fire apparatus maintenance program plan for the WFD. Historical and descriptive research methodology was utilized with information gathered based on personal observations, literature review, and a survey. Data was gathered regarding past history and effectiveness of the current fire apparatus maintenance program, the risks associated with not having a fire apparatus preventative maintenance program, and what programs other communities use. Data indicated that in most cases, in like size departments, a hybrid or combination emergency vehicle maintenance program is utilized. The majority of programs included shared resources both internal and external combined with either a third party vendor or an “in house” mechanic. Very early on the scope of this project took on a sense of urgency in the form of action research when the departments EVC announced his retirement and that he would only be working one more day. As a result of this research, recommendations were developed to guide the WFD in creating fire apparatus maintenance program criteria specific to their needs.

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## Introduction

The problem this research addresses is that the current Emergency Vehicle Coordinator (EVC) for the Village of Wilmette Fire Department is near retirement and there is no fire apparatus maintenance program succession plan in place which will lead to preventable maintenance costs and safety issues. The purpose of this research is to evaluate, make recommendations, and implement a fire apparatus maintenance program plan for the Village of Wilmette.

Information for the project was gathered from personal observations, data analysis, literature review, and a survey of fire departments throughout the United States. The project employed historical and descriptive research methodology to attempt to answer the following five questions:

- (1) What has the Village of Wilmette historically done in regards to fire apparatus maintenance?
- (2) What is the effectiveness of the current fire apparatus maintenance program in the Village of Wilmette?
- (3) What are the risks associated with not having a fire apparatus maintenance program?
- (4) What fire apparatus maintenance programs do other communities utilize?
- (5) What fire apparatus maintenance program is appropriate for the Village of Wilmette?

Very early on the scope of this project took on a sense of urgency in the form of action research when the departments EVC announced his retirement and that he would only be working one more day. Coupled with the department's aging fleet and a declining economy with no relief in the near future with which to provide funds for emergency vehicle replacement, has escalated the importance of this research.

## Background and Significance

The Village of Wilmette, Illinois is a Chicago suburb located along the western shore of Lake Michigan. Established after the Great Chicago Fire of 1871, Wilmette is a primarily residential town in the vast Chicago metropolitan area, which had more than 9.3 million residents in the 2010 Census (U.S. Census Bureau, 2010). A major highway, Interstate 94 runs through Wilmette leading in and out of Chicago. In 2006-2008 there were 9,900 households in the Village of Wilmette with a population of 28,450. The average household size was 2.8 people, families made up 76 percent of the households. The median age was 43.2 years. Thirty-one percent of the population was under 18 years and 15 percent was 65 years and older. The median income of households in Wilmette was \$132,411. The Village of Wilmette had a total of 11,000 housing units, 7 percent of which were vacant. Of the total housing units, 82 percent was in single-unit structures, 18 percent was in multi-unit structures, and less than 0.5 percent was mobile homes. Nine percent of the housing units were built since 1990 (U.S. Census Bureau, 2010).

The Wilmette Fire Department (WFD) was established in 1874 and just prior to the turn of the century became a full-time professional organization with salaried members. The organization has grown to two fire stations with 46 sworn full time members and three civilian personnel. The fire department has an annual operating budget in excess of \$7 million. Its services include fire suppression, emergency medical services, special rescue, water rescue and recovery, hazardous materials response, fire prevention, fire education, and fire investigation.

In 2010, the WFD responded to 3,094 incidents, including 35 structure fires, 1,614 EMS calls, and 560 mutual aid calls, this represents 6,044 emergency vehicle responses. Over the last three years, the department responded to over 1,500 mutual aid/automatic aid requests (Firehouse™, 2011).

In the very early days of firefighting, men were relied upon to pull firefighting apparatus to the scene of a fire, decades later, horses were tasked with this responsibility. Today we rely on sophisticated custom firefighting apparatus to not only serve as transportation for firefighters and

their equipment, but to perform a myriad of other tasks. Technology may change but the mission has remained the same from the very beginning, and that is to protect lives and property from fire and other emergencies. Fire Apparatus and emergency vehicles have become very costly, some with the price tag of over one million dollars (S. Junker, personal communication, September, 1, 2011). These purchases very often are the single most significant capital item a municipality will fund and maintain. Maintenance on these vehicles requires specialized tools and technical expertise.

“Apparatus that won't start, breaks down enroute to a call or, worst of all, fails at the scene of a fire can have catastrophic consequences. That's why having an apparatus maintenance program is vital to fire department operations” (Bellam, 2011).

The Village of Wilmette, Illinois has had its emergency vehicles serviced by Wilmette Fire Department (WFD) personnel for over 50 years. Preventative maintenance, vehicle repairs, specification development, and required testing were the responsibility of a firefighter who first, was qualified to perform the work and second, wanted to perform the work. This person would work a regular shift schedule and maintain the vehicles on their day off for overtime which was calculated at time and a half. In the last ten years a job description for the Firefighter/Paramedic/ Emergency Vehicle Coordinator (EVC) was developed (see Appendix A). In 2001, Wilmette firefighters voted to organize and joined the Service Employees International Union (SEIU) becoming Local 73. The Firefighter/Paramedic/EVC position was included in the collective bargaining agreement (CBA). Under the CBA, the Firefighter/Paramedic/ EVC was entitled to the same rights as the rest of the bargaining unit with the addition of language regarding wages and pay classification. The Firefighter/Paramedic/ EVC salary was equivalent to a Captain's pay. The CBA also stated that the Firefighter/Paramedic /EVC will receive overtime at the higher rate at time and a half when he/she works on non-duty days as the EVC (SEIU Local 73, 2011). In 2010 the Firefighter/Paramedic /EVC salary was \$102,730, including overtime the salary was \$160,000 (Wilmette, 2011). A Wilmette firefighter's salary with comparable longevity was \$87,448. The Firefighter/Paramedic/EVC

routinely works a 53 hour work week on a 24 hour on duty- 48 hour off duty shift as a firefighter, and another 20 as the EVC. During his regular shift, when time and staffing levels permit, the EVC is assigned to positions that allow him to remain in the station to work on vehicles. The Firefighter/Paramedic /EVC estimates that 80% of his overtime is due to preventive maintenance and 15% is due to emergency repairs and the remaining 5% is due to miscellaneous job functions (A. Amidei, personal communication, May 1, 2010). A normal shift day for the Firefighter/Paramedic /EVC consists of 6 to 8 emergency calls, two to three hours of training, an hour of physical fitness, and two hours of projects. Projects throughout the year consist of fire hydrant testing, hose testing, commercial life safety inspections, and public education programs (Firehouse™, 2011). Between these activities the Firefighter/Paramedic /EVC routinely works on the fire apparatus, many times well into the night.

Over the years this arrangement worked well for the WFD by having an experienced emergency vehicle mechanic who worked on the vehicles in house and had ties to the fire department. WFD emergency vehicles are kept in great shape, experiencing little out of service time due to mechanical failures. Most repairs are made in a timely manner, many times without any interruption in service. Larger repairs are sent out to various vendors for service or more recently repaired by vendors with mobile equipment and technicians at the WFD. The department experiences few catastrophic vehicle failures due to the fact the emergency EVC identified and mitigated small problems that had the potential to become very big issues. As the fire service evolved so did the criteria required to maintain emergency vehicles as well as the level of training required of the personnel responsible for maintaining the equipment. The current EVC is a certified Level III Master Emergency Vehicle Technician (EVT). The professional qualification requirements for EVT certification are contained in the National Fire Protection Association (NFPA) 1071 Standard for Emergency Vehicle Technician Professional Qualifications. NFPA 1071 states that, “ An Emergency Vehicle Technician III is an individual who is the first-level supervisor responsible for Emergency Vehicle Technician I and II



personnel performance, scheduling, quality control of repairs and maintenance work, and the compiling and reviewing of initial documentation” (NFPA, 2011, p. 6). In the past, the WFD was under the assumption that only EVT certified mechanics were permitted to work on emergency apparatus. Annex B contained in NFPA 1071 does not require a person to be certified as an EVT but outlines the requirements for qualification. NFPA recognizes other existing programs such as the Automotive Service Excellence (ASE), the Canadian provincial journeyman license for heavy equipment, a technician certification program recognized by a Federal or state agency, or equivalent programs as a means of guiding the authority having jurisdiction to determine the required knowledge and skills of a candidate (NFPA, 2011). Table B.2 (a) and (b) of NFPA 1071, provide a guide to distinguish the appropriate ASE and EVT certifications available to persons performing maintenance on emergency response vehicles under or above 15,000 pound gross vehicle weight (GVW). The current WFD preventative maintenance schedule included four major (A) and four minor (B) inspections/services annually. This appears to be well over the minimum required by NFPA 1915 Standard for Fire apparatus Preventative Maintenance Programs which “establishes minimum requirements for establishing a preventative maintenance program for fire apparatus” (NFPA 1915, 2000).

Emergency vehicle purchase costs have increased to the point where it is very difficult to justify replacement. As a result, Wilmette has had to delay replacing older vehicles in its fleet for the last several years. Maintenance and repair costs have increased in order to keep the vehicles in service. Projections over the next three years indicate Wilmette will spend over \$50,000 annually in maintenance costs for preventative maintenance, \$25,000 for emergency vehicle repair, and close to \$30,000 in costs associated with parts and shop supplies (Wilmette, 2011). Historically Wilmette has been over budget in its maintenance of equipment, shop supplies, and auto supplies accounts (Wilmette, 2011).

The WFD vehicle fleet consists of : three ambulances, two tower ladders/quints, two pumping engines, one heavy rescue squad truck, one diesel pick-up truck, two incident command vans, and three staff vehicles ( see Appendix B).

For the last two years WFD staff has attempted to reach consensus with Village Administration regarding an emergency vehicle maintenance succession plan, as the current EVT has stated that he will retire shortly after his 50<sup>th</sup> birthday. The current EVT offered to retire and then be hired part time as a civilian EVT to work on WFD vehicles. The Village made a conditional offer with the added stipulation that the EVT would be available on an emergency basis to staff a snow plow vehicle in the event of a large snow storm. The WFD's current EVT retired shortly thereafter and is now employed by a neighboring municipality as a Fleet Manager. The vacancy in the WFD EVT position coincided with this research project which added a sense of urgency and relevance this researcher was not expecting.

This research will utilize the United States Fire Administrations (USFA) 5 Strategic Goals as a guide. In particular, this research focused on three of the five USFA strategic goals: “(1) Reduce risk at the local level through prevention and mitigation, (2) Improve local planning and preparedness, and (3) Improve the fire and emergency services’ capability for response to and recovery from all hazards (FEMA, 2010, p. 13).” This Applied Research Project (ARP) will address the National Fallen Firefighters Foundation (NFFF) 16 Firefighter Life Safety Initiatives, in particular numbers 8 and 16, which states: “Utilize available technology wherever it can produce higher levels of health and safety, and Safety must be a primary consideration in the design of apparatus and equipment” (NFFF, 2010). In addition, the research objective is based on the premise that the role of the Executive Fire Officer (EFO) is to identify, analyze and address community risk. This objective is stated in the Executive Analysis of Community Risk Reduction curriculum, the second course in the Executive Fire Officer Program (FEMA, 2009). The areas of succession planning and leadership

were addressed with the guidance of material from the fourth and final Executive Fire Officer Class, Executive Leadership R125.

### Literature review

The goal of this projects literature review was to gather information and data to enable this researcher to not only answer the five research questions, but to research, evaluate, and create a change in the way the Village of WFD maintains its emergency vehicles. The literature review consisted of reviewing, comparing and contrasting several literary sources on both emergency and non-emergency vehicle maintenance programs. Sources for the literature review consisted of NFPA Standards and articles, the National Fire Academy's Learning Resource Center was utilized to review previous Executive Fire Officer applied research projects, and various journals and periodicals. National Institute for Occupational Safety and Health (NIOSH) firefighter fatality reports provided insight into fatalities involving firefighting apparatus. The NIOSH reports also included key contributing factors and recommendations to prevent the accidents from occurring in the future. Historical as well as current vehicle maintenance records were collected from both the WFD and public works departments. The following NFPA Standards were accessed through the WFD's NFPA code subscription: NFPA 1911 Standard For The Inspection, Maintenance, Testing, And Retirement Of In-Service Automotive Fire Apparatus, NFPA 1071 Standard for Emergency Vehicle Technician Professional Qualifications, NFPA 1915 Standard For Fire Apparatus Preventative Maintenance Programs, NFPA 1914 Standard For Testing Fire Department Aerial Devices, and NFPA 1917 Standard For Automotive Ambulances. The NFPA states that " its mission is accomplished by advocating scientifically-based consensus codes and standards, research, and education for fire and related safety issues" (NFPA, 2011). NFPA codes are recommendations, and are not mandatory unless Federal, State or local jurisdictions adopt them. NFPA standards have become industry standards, NFPA's National Fire Codes are developed by technical committees staffed by over 5,000

volunteers, and are adopted and enforced throughout the world. NFPA functions as a nonprofit membership organization with more than 65,000 members from around the globe, all working together to fulfill the Association's mission. The City of Manhattan Beach California granted permission to use their Request for Proposal for Fire Apparatus Maintenance and Repair Services as a template for the Village of Wilmette.

The National Institute for Occupational Safety and Health (NIOSH) conducts investigations of fire fighter line-of-duty deaths for the purpose of developing recommendations for preventing future deaths and injuries. Through the fire fighter fatality investigation and prevention program, NIOSH provides detailed accounts of firefighter fatalities so that the fire service can learn from these tragic events and prevent similar events (NIOSH, 2011). Four NIOSH fire fighter fatality reports involving fire apparatus accidents were reviewed for this project.

The first report involved the death of a 52 year old career Lieutenant in 2009. In addition to the fatality three other firefighters were injured when the ladder truck they were responding to an emergency call in failed to stop while traveling down a hill (NIOSH, 2009). The Lieutenant was pronounced dead at the scene, one of the injured firefighters had to be extricated from the truck and received serious traumatic injuries, the other two received minor injuries. The NIOSH investigation and subsequent report identified several key contributing factors which included, apparatus braking system deficiencies, deficiencies in the apparatus maintenance program, insufficient training for fire apparatus operators and fleet maintenance personnel, and failure to wear seat belts (NIOSH, 2009).

The NIOSH report stated that “the investigators concluded that, in order to minimize the risk of similar occurrences, fire departments should:

- Ensure that preventive maintenance programs are developed and implemented for fire apparatus according to manufacturer guidelines/specifications and national consensus standards.
- Ensure that preventive maintenance on fire apparatus is performed and/or overseen by

qualified personnel who meet the certification requirements outlined in NFPA 1071

Standard for Emergency Vehicle Technician Professional Qualifications.

- Develop and utilize policies and procedures that monitor preventive maintenance and other automotive services performed by vendors.
- Work with local, state, and federal authorities having jurisdiction (AHJ) in adopting an air brake endorsement for noncommercial driver's licenses that would require individuals operating air brake equipped fire apparatus to verify their knowledge and skill proficiency (e.g. air brake system, air pressure gauges and alarms, and pre-trip inspection) prior to operating the fire apparatus.
- Ensure that current driver training programs provide ample classroom instruction, behind the wheel driving, procedures for driver clearance, and annual refresher training.
- Develop and implement fire apparatus inspection procedures and check sheets for their fleet, provide a systematic approach for communicating and receiving inspection sheets from the field, and institute a system to file and track fleet records (e.g., inspection sheets, work orders, repairs, apparatus specifications, and maintenance).
- Ensure that policies and procedures are developed and enforced on the use of seat belts.
- Develop policies and procedures that assist with determining specifications for new apparatus and replacement cycles of existing fire apparatus"(NIOSH, Firefighter Fatality Report # F-2009-05, p. 2).

The second NIOSH firefighter fatality report involved the death of a 34 year old volunteer/paid on call firefighter who was killed when the fire truck he was in rolled over while responding to an emergency. In that accident a second firefighter riding in the apparatus was severely injured (NIOSH, 2009). According to the report, " the crash occurred when the fire truck was unable to stop while crossing an intersection, swerved to avoid traffic and overturned into a utility pole" (NIOSH, Firefighter fatality report #F-2009-08, p.1).

The NIOSH report identified the following key contributing factors:

- Non-use of seatbelts, an inadequate vehicle inspection and maintenance program
- Inadequate driver training and inexperience with this specific apparatus
- An older apparatus with minimal safety features, and “lights and siren” response with an auxiliary apparatus not designed for higher-speed on-road emergency response” (NIOSH, Firefighter Fatality Report # F-2009-08, p. 2).

The third NIOSH firefighter fatality report involved the death of a volunteer fire fighter when a tanker he was driving rolled over while responding to a mutual aid grass fire (NIOSH, 2006).

NIOSH investigators concluded that,” to minimize the risk of similar occurrences, fire departments should:

- Ensure that water tankers are operated within safe weight restrictions that comply with the specific vehicle characteristics
- Ensure that all fire apparatus meet the requirements of NFPA 1901 Standard for Automotive Fire Apparatus
- Ensure that drivers of fire department vehicles receive training at least twice a year on each vehicle that they may be called upon to operate
- Develop and enforce standard operating procedures (SOPs) that require mandatory use of seat belts in all vehicles
- Develop a comprehensive apparatus maintenance program that includes regularly scheduled inspections, documentation, and procedures for removing apparatus from service when required” (NIOSH Firefighter fatality report #F-2006-06).

The Fourth NIOSH fire fighter fatality report involved the death of a 53-year-old male volunteer captain when he was struck and pinned against a wall by a fire department brush truck. The brush truck was having maintenance performed on the steering column by a fire fighter/mechanic.

“The NIOSH investigation resulted in key recommendations including:

- Ensure steps are taken to block vehicles undergoing maintenance against inadvertent movement (e.g., setting the parking brake, wheel chocks, or disconnection of battery).
- Develop, implement, and enforce policies and procedures outlining safe work practices within a vehicle maintenance facility.
- Develop, implement, and enforce a comprehensive preventive maintenance program.
- Ensure that fire department vehicle operators and vehicle maintenance personnel are aware of available manufacturer pre-market and aftermarket installed safety devices on apparatus.” (NIOSH Firefighter fatality report #F-2010-37, p. 2)

According to the NIOSH firefighter fatality investigation and prevention program between 1999 and 2010 there were 62 firefighter fatalities involving emergency vehicles and another 16 fatalities as a result of accidents involving equipment on the emergency apparatus. Firefighter fatalities as a result of privately owned vehicles and struck by other were not included in this data (NIOSH, 2011).

In an article titled the Importance of Preventative Maintenance (PM), Poushali Ganguly lists the benefits of preventive maintenance are many. Ganguly states the first benefit is that preventive maintenance increases the efficiency and speed of your equipment. Preventative maintenance conserves the energy and life of the equipment, as it is less taxing if it goes through regular maintenance programs. “A good PM program also helps to avoid the replacing parts of the equipment before the scheduled time. PM can also reduce labor costs by preventing costly breakdowns, replacements, or repairs (Ganguly, 2010).” Ganguly goes on to say that a PM reduces costs by minimizing out of service time. PM also reduces costs associated with accidents both through workers compensation and litigation. Ganguly states that the right time for a PM varies for different equipment and the nature of work that the equipment does. There are some machines that need a very comprehensive and timely maintenance schedule while other machines function fine even when the schedule is slack. The interval between the programs and the usage determines the scheduling of the

maintenance programs. Moreover there is a phase for every machine when it starts showing the preliminary signs of wear and tear (Ganguly, 2010).

According to the Occupational Safety and Health Association (OSHA) “The purpose of all maintenance is to maintain vehicle availability at reduced cost (OSHA Academy, 2011. Para 1).” OSHA States that motor vehicle maintenance is divided into tasks and objectives. Motor vehicle maintenance tasks include inspection, diagnosis, lubrication, adjustment, cleaning, testing and replacing failed components or components on the verge of failure. OSHA lists the objectives of a Fleet Maintenance Program are to: avoid reducing vehicle life span, reduce vehicle downtime and associated costs, enhance vehicle resale value, ensure that all vehicle maintenance, service and repairs are necessary and performed properly in a timely manner, acquire the services of competent, reliable vendors at the best price available if in-house maintenance is not an option, and ensure all warranties and guarantees are honored. For simplicity, OSHA Academy breaks down a vehicles systems into parts so everyone can improve their knowledge and understanding of automotive technology. OSHA stresses that fleet managers and other employees involved in maintaining the fleet need to understand the characteristics of the assets they manage. The primary systems to be maintained in a motor vehicle are listed by OSHA as: engine, fuel, electrical to include Ignition, charging, and starting, cooling systems, lubrication systems, drive train, running gear, and emission control. “Fleet Managers should understand the purpose and basic operation of each of these systems” (OSHA Academy, 2011, para 2).

OSHA goes on to state that “detecting and correcting deficiencies in any of the vehicle systems in their early stages before they develop into major defects results in lower maintenance costs as it is more cost effective to execute a planned repair in a shop than to fix a breakdown.

Equipment breakdowns and downtime can be significant costs. Downtime results in decreased efficiency, increased rental costs, loss of productivity and poor customer relations. Safety



related defects identified before use can avoid accident, injury and death. Maintenance should be scheduled to ensure all motor vehicles are maintained and serviced according to the vehicle manufacturer's recommendations (or more frequently where warranted by local conditions)” (OSHA Academy, 2011, para.3).

A Scheduled Maintenance Program ensures motor vehicles operate safely and economically, meet emissions standards, warranty requirements and manufacturers maintenance requirements states OSHA (OSHA, 2011).

### Procedures

The procedures for this project included historical, descriptive, and ultimately action research which included several steps, all with the intent of answering the five research questions in order to address the projects problem and purpose statements. After the department’s EVT announced his retirement the lack of an emergency vehicle maintenance program succession plan necessitated that the procedures for this research project be directed towards action research. Action research is defined by the National Fire Academy’s Executive Development Manual as “Taking immediate action to solve an existing problem in your organization” (FEMA, 2006. P. SM 4-19). An analysis of historical data of WFD emergency vehicle maintenance records and program documentation was conducted to provide a foundation for the project and assist the researcher in better understanding emergency vehicle maintenance. The National Fire Academy’s Learning Resource Centers (LRC) card catalog and online material were referenced. Past, Executive Fire Officer Applied Research Projects that dealt with the topic of emergency vehicle maintenance were reviewed. Specific recommendations by the authors for future research provided guidance for this project. Specific web sites and on-line material of the National Fire Academy (NFA), National Fire Protection Association (NFPA), and the Federal Emergency Management Agency were used to research information on emergency vehicle maintenance and the risks associated with not having a preventative maintenance

program. The NFPA on-line standards subscription service was utilized to gain access to NFPA 1071: Standard for Emergency Vehicle Technician Professional Qualifications, NFPA 1914: Standard for Testing Fire Department Aerial Devices, NFPA 1917: Standard for Automotive Ambulances, NFPA 1015: Standard for Fire Apparatus Preventive Maintenance Programs, and NFPA 1911: Standard For The Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus. The web search was conducted utilizing the key words, emergency vehicle, vehicle preventative maintenance, fire apparatus, fleet maintenance, and firefighter fatalities. The National Institute for Occupational Safety and Health (NIOSH) conducts independent investigations and provides reports of fire fighter line of duty deaths. These reports were reviewed as part of the literature review, in particular, line of duty deaths as a result of emergency vehicle accidents.

A survey was developed to gather information and data regarding how other fire departments conducted emergency vehicle maintenance. The survey was developed, distributed, and results tabulated through SurveyMonkey®. The SurveyMonkey®, Smart Survey Design Guide (1999-2011) was utilized to develop questions for the survey (See Appendix C). In all, there were thirteen questions in the survey ranging from demographic questions regarding population served and size of department to a matrix of choices regarding the amount a department spends on preventative maintenance and vehicle repairs (See Appendix C). The Likert item question format was utilized to gather data regarding a department's level of satisfaction with their current emergency vehicle maintenance service and a departments ranking of the importance of individual characteristics of an emergency vehicle maintenance service. "A Likert item is simply a statement which the respondent is asked to evaluate according to any kind of subjective or objective criteria; generally the level of agreement or disagreement is measured" (Wikipedia, 2011). The final question was open ended, the question asked respondents "If there was one thing you would change regarding your current emergency vehicle maintenance program or service, what would it be" (McGreal, 2011)? Several of the questions requested explanation if the respondents answer was at either end of the "Extremely"

spectrum (See Appendix D). The survey was sent by email to over 400 fire departments throughout the United States. The distribution list for the survey was assembled by utilizing contacts gleaned from the National Fire Academy Executive Fire Officer (EFO) Alumnae list, Accreditation Managers from fire department's that are Accredited through the Center for Public Safety Excellence (CPSE), and the Illinois Fire Chiefs Association. Ninety seven (97) surveys were returned which represented approximately a 25% rate of return.

Survey data was cross tabulated using the Survey Monkey crosstab and filter tools. Cross tabulated data is useful for showing a side by side comparison of two or more survey questions to determine how they are interrelated. "In statistical terms, it is a joint distribution between two (or more) discrete variables such as product usage and demographics" (Survey Monkey Tutorial, 2010). Several reports were generated from the survey data utilizing both the crosstab and filtering features. Several filtered reports were generated by limiting data to specific groups of respondents such as population served to 25,000 -50,000, population served to age of oldest apparatus, and age of oldest apparatus and amount of money budgeted for preventative maintenance. This feature allowed the researcher to narrow down and compare data from multiple questions.

Limitations experienced as part of this research included a lack of data in regards to detailed maintenance records for WFD apparatus. Records found in the departments Firehouse™ database were incomplete and generic in nature. Maintenance records from outside vendors that the department historically utilized were unavailable, with the exception of apparatus under warrantee. This research uncovered the inconsistency in which the WFD was keeping records involving emergency vehicle maintenance. Although minimum annual requirements are identified by NFPA, this research indicated that there were industry standard inconsistencies regarding the level and frequency of preventative maintenance.

NIOSH firefighter fatality reports displayed limitations due to the fact that the reports are based on third party and witness accounts of conditions and factors influencing the outcomes. The

reports left questions as to exactly why and how the fatalities occurred and if certain variables would have changed the outcome.

## Results

Through historical, descriptive, and action research methodology the researcher was able to gather a significant amount of information to answer the five stated research questions and to formulate specific recommendations. Initially, through the literature review and data analysis, deficiencies were noted in regards to what exactly constitutes a preventative maintenance schedule. NFPA standards make recommendations as to when and how a preventative maintenance program should be instituted including minimum requirements. The research uncovered that practically no two departments or third party vendors use the same service schedule or vernacular. As an example, three third party vendors were asked to provide quotes for an “A” and ” B” PM service. The three bids provided were inconsistent on what was to be done and how often the service should be completed. One companies A was the others B service, what was deemed to be a minimum service was another vendors top of the line service. One vendor stated they would perform an annual PM at the fire station, while the other stated emphatically that they had to perform the PM at their shop in order to complete the service correctly. The lack of consistency seemed to be prevalent throughout the industry and was listed as a source of frustration through the survey. These results led to the recommendation that the municipality should consult manufacturers and industry standards to use as a guide for developing its own schedule which should be tailored to its needs. The municipality must also evaluate whether to meet or exceed these standards.

A survey was developed and distributed through SurveyMonkey™. Data results were compared to the age, engine hours, and of the WFD fleet of fire apparatus, ambulances and staff vehicles (See appendix B). To summarize the survey: Questions 1 and 2 dealt with demographic information. Over 50% of the respondents represented fire departments with a population of less than 50,000, 20% with

a population between 50,001 - 100,000, and 10% with a population over 100,000. Approximately 60% represented fire department with under 50 personnel, 20% had between 51 and 100 personnel, 15% between 101 and 250, and 3% had over 251 personnel.

Question 3 asked respondents how many vehicles their department was responsible for in each given category. Categories were provided based on common fire apparatus vehicle type. The overall majority listed that they had 1-5 vehicles in each category with the exception of ambulances and staff vehicles, 14% had 6-10 ambulances and 32% had 6-10 staff vehicles. Question 4 asked what is the age of the oldest front line apparatus of each type your department is responsible for (in years)? Apparatus categorized as Aerials with no pump and tankers were omitted from this summary intentionally as Wilmette does not own these types of fire apparatus. Response data from question 4 indicate that 98% of ambulances and staff vehicles were between 1-15 years of age, with 0% being older than 21 years of age. Pumping engines had 7.7 % at 1-5 years, 30.8% at 6-10 years, 18.7% at 11-15 years, 30.8% at 16-20, 7.7% at 21-15 years, and 4.4% at over 25 years old. Aerials with pumps had 21.9% at 1-5 years, 20.3% at 6-10 years, 31.3% at 11-15 years, 15.6% at 16-29 years, 6.3% at 21-25 years and 4.7% over 25 years old. Heavy rescue squads had 17.3% at 15 years, 25.0% at 6-10 years, 34.6% at 11-15 years, 13.5% at 16-20 years, and 7.7 % over 21 years old. The age of the Wilmette fleet of front line fire apparatus falls in line with acceptable parameters when comparing data from question 4 of the survey. The oldest Wilmette staff vehicle is 10 years (50%), pumping engine is 15 years (18.7%), heavy rescue squad is 12 years (34.6%), and aerial with pump is 2 years old (21.9%). Question 5 asked for each category of apparatus, how many engine hours does your oldest frontline vehicle have? Data indicated that the majority of staff vehicles had less than 2001-3000 engine hours, ambulances were more spread out with 54.4% having 1-3000 hours, 21.7 had between 3001-6000 hours, and 23.9 % had over 6000 engine hours. The engine hours of the oldest frontline Wilmette ambulance was 7,220 (23.9%), pumping engine was 10,800 (21.6%), Aerial with pump was 1,200 (30.8%), and heavy rescue squad was 845 engine hours (30.6%). Question 7, 8, and

9 dealt with budget amounts. Question 7 asked: For the apparatus your department is responsible for, what is your average vehicle maintenance budget for the last three years? Of the 26 departments serving a population of 25,000-50,000 people, 2 or 7% budgeted and average of \$10,000-\$20,000, 6 or 23% budgeted from \$20,001-\$30,000, 3 or 11.5% budgeted between \$30,001-\$40,000, 10 or 38% budgeted between \$40,001-\$100,000, and 3 or 11.5% budgeted over \$100,000 annually. Question 8 asked: For each category of apparatus, how much does your department spend on preventative maintenance? Question 9 asked: For each category of apparatus, how much does your department spend on vehicle repairs? Data from respondents indicated that the majority of departments serving a population from 25,000-50,000 people (26 out of 97), budgeted between \$1-\$15,000 for preventative maintenance and vehicle repairs. What was interesting about questions 8 and 9 is that an undetermined selection was included in the question. Respondents indicated that over 20% of the departments were undetermined in regards to how much they budget for preventative maintenance for each category of apparatus, with the highest percentage of undetermined (28.6%) in regards to tankers. Respondents also indicated that between 12.0%- 16.7% were undetermined on how much their department budgeted for vehicle repairs. Respondents were asked to comment if they answered “undetermined”, comments ranged from “difficult to determine” to “unknown”. This data and the associated comments along with the lack of data available from the WFD led the researcher to a conclusion. The data or lack of, in regards to fire apparatus vehicle maintenance budgets for preventative maintenance and repairs indicates that as an industry, a significant amount of fire departments do not have accurate emergency vehicle documentation. Question 10 asked: Who currently maintains your apparatus fleet? Of the 26 respondents that serve a population between 25,000 -50,000, 5 or 19% have an “in house” fire department mechanic or EVT, 9 or 34% use a shared municipal vehicle maintenance service and facilities, 8 or 30% have an independent vehicle maintenance service provider, 0% use a regional or shared vehicle maintenance service and facility, and 6 or 23% use a combination of services. Question 11 asked: Have you changed emergency

apparatus maintenance service in the last 5 years? 46.2% answered yes and 53.8% answered no.

Question 11 requested that if the respondent answered yes that they explain why. Of the 12 respondents that answered yes, stated that the reasons for changing emergency apparatus maintenance service was due to cost, not satisfied with service, and retirement or other vacancy of key maintenance personnel. Question 12 asked: Overall, please rank your level of satisfaction with your current emergency vehicle maintenance service. Of the 26 respondents, 2 or (7.7%) answered extremely dissatisfied, 9 or (34.6%) moderately dissatisfied, 4 or (15.4%) slightly dissatisfied, 1 or (3.8%) neither, 1 or (3.8%) slightly satisfied, 4 or (15.4%) moderately satisfied, 5 or (19.2%) extremely satisfied. The respondents that answered either extremely dissatisfied or extremely satisfied were asked to explain why (see Appendix D). One respondent from a local fire department similar in size and make up to Wilmette explained that:

“We have a great working relationship with our fleet services. The method for communicating needed repairs and other issues is excellent. Long ago, the City developed a priority list for the City's entire fleet and the FD's apparatus have been classified as the #1 priority based on the importance of the vehicles to public safety (MICUs are #1, Pumpers and the Ladder Truck are second). If at any time an "emergency repair" is needed, the mechanics will drop what they are doing and tend to the fire apparatus to rectify the issue and get it back on the street ASAP. The mechanics will also come in from home when off-duty to help with any issues if deemed emergent.

### Discussion

The department's Firefighter/ Emergency Vehicle Coordinator (EVC) recently retired. The EVC performed repairs and preventive maintenance on the fire departments fleet on his off shift days requiring him to be paid overtime for his work. The EVC estimated that 80% of his overtime is due to preventive maintenance and 15% is due to emergency repairs and the remaining 5% is due to

miscellaneous job functions. In 2009 the EVC received an additional \$45,729 in overtime due to the functions of the EVC.

The first of the five research questions asks what the Village of Wilmette historically has done in regards to fire apparatus maintenance. In the case of the Village of Wilmette the fire department understood the value of having a Master Level EVT as a firefighter/EVC. Vehicles were kept in good condition, experienced very little breakdowns, and any issues were addressed in a timely manner with little interruption in service availability. Research indicated that the department neglected to properly document the EVC's activities and neglected to document itemized time and material costs associated with repair and preventative maintenance (Firehouse™, 2011). The historical research conducted identified inaccurate and sparse maintenance record documentation for the fire department's vehicles. This resulted in the department having difficulty justifying the full time EVC position in its succession planning proposal and any attempt at replacing older apparatus. Conversely, the fleet maintenance records kept by the public works department were very thorough and easily reproduced. Staffing levels of both facilities may or may not have played a role in the discrepancy of record keeping.

To answer the second research question as to the effectiveness of the current fire apparatus maintenance program in the Village of Wilmette the researcher had to differentiate between the time period when the department actually had a program which was pre-retirement of the EVT and post retirement when action research necessitated developing a plan to move forward. Again, a lack of available documentation inhibited the researcher to identify quantitatively the effectiveness of the vehicle maintenance program. Budget data was available and indicated the Village set aside over \$100,000 annually for emergency vehicle maintenance including salary, parts, shop supplies, and third party maintenance (Wilmette, 2011).



The third research question addressed the risks associated with not having a fire apparatus preventative maintenance program. Actual case study from NIOSH firefighter fatality reports involving emergency vehicle accidents provided investigation into the causes of these fatalities and recommendations to avoid occurrences in the future. The review of these reports revealed common factors and recommendations in all four reports. Several factors that were uncovered during the investigation led to recommendations: (1) In regards to the NFPA 1500 Standard on Fire Department Occupational Safety and Health Program states there should be criteria established to assist a fleet maintenance division in determining when an apparatus should be placed out-of-service. NFPA 1911 specifically addresses criteria for taking an apparatus out-of-service. Once out-of-service, the fleet service manager should determine who is capable of performing the work, the fire department fleet maintenance division or a local vendor. (2) A policy addressing preventive maintenance or repair work should be established to better assist the fleet service manager in making this decision. (3) Manufacturer or department preventive maintenance programs should be established to better assist the fire department in making determinations on whether an apparatus needs routine service, repairs, or is safe to be in service. NIOSH states that preventive maintenance programs are designed to reduce apparatus downtime, breakdowns, extend the life of an apparatus, and identify potentially life-threatening problems (NIOSH, 2010). In regards to the recommendation to ensure that preventive maintenance programs are developed and implemented for fire apparatus according to manufacturer guidelines/specifications and national consensus standards, the report states that . NFPA 1911 *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* states that all fire apparatus that could be placed in service for emergency response should be inspected, maintained, tested, and retired as required to keep them in safe operating condition and ready for response at all times. Maintenance schedules should be established and recorded as an integral part of a well-planned maintenance program. The maintenance program should include daily, weekly, monthly, yearly, and periodic maintenance service checks. The

maintenance checks should be based on the manufacturer's service manuals, the tire manufacturer's recommendations, and operating conditions. Safety and operational readiness need to be the highest priority when inspecting and maintaining apparatus. NFPA 1911 recommends that information from several sources, including the manufacturer's manuals and NFPA standards, be used to determine fire apparatus preventive maintenance schedules. As the necessary maintenance tasks are identified, each should be assigned a schedule based on months, years, apparatus hours, or other appropriate time frame that will determine when it is to be performed and by whom. Once the tasks have been performed, frequency determined, and individuals identified to do the work, the preventive maintenance program can be organized into a series of schedules, check sheets, record sheets, and other documentation that will ensure correct implementation of the program.

Risks included, costly breakdowns, lengthy out of service time, shortened life span of vehicles requiring premature replacement, costs associated with death and injuries of both firefighters and civilians. Another intangible risk is the lowering of trust and reputation associated with public safety agencies involved in accidents. The information and data gathered through this research projects literature review and survey clearly illustrates and reinforces the importance of a comprehensive vehicle maintenance program whether for a fleet of emergency or non emergency vehicles. A fleet of emergency vehicles exacerbates the importance of a quality preventative maintenance program due to the potential exposure due to loss of life and potential for civil liability. "It is imperative from a legal standpoint to implement a comprehensive program that uses the NFPA and FMCSA PM and inspection criteria as a base for the fire departments servicing of apparatus" (Hart, 2008). OSHA, NFPA, and vehicle manufacturers identify the recommended standards to be followed when performing vehicle maintenance and outline recommendations for the level of training and certification of the personnel performing the work. One point that is reinforced again and again is that these are minimum standards and recommendations. This researcher found through the literature review and survey data analysis that there is no one way to conduct an emergency vehicle

maintenance program, both the users and service providers questioned offered differing opinions in regards to frequency, scope, depth, and thoroughness of the program. This inconsistency lends itself to discrepancies due to how costly a vehicle maintenance program can be. On one side of the table less seems better due to cost while on the other side more is better. Somehow a municipality or company needs to find the middle ground or an acceptable level of coverage when designing, implementing and evaluating a vehicle maintenance program.

The forth research question asked what other fire apparatus maintenance programs do other communities use. Data from the survey from like size departments who protect a population of less than 50,000, indicated that the majority utilized an in house EVT or mechanic or a combination of services. Comments from survey respondents also indicated accurate record keeping and control were listed as issues. There also seemed to be a lack of planning or “living in the moment” when it came to succession planning.

The final question attempted to garner recommendations on what apparatus maintenance program would be most appropriate for Wilmette. In the case of the Village of Wilmette the fire department understood the value of having a Master Level EVT as a firefighter/emergency vehicle coordinator but neglected to properly document his activities. The department also neglected to document itemized time and material costs associated with repair and preventative maintenance. This resulted in the department having difficulty justifying the full time EVT position in its succession planning proposal. Through this research recommendations were developed and submitted to the Wilmette Village Board regarding an in-depth emergency vehicle maintenance plan. Subsequently the Village published a request for proposal for third party emergency vehicle maintenance and repair. The vehicle maintenance supervisor for the Wilmette Public Works Department was given the responsibility to manage the fire department’s fleet with assistance from an Officer from the fire department. Both the vehicle maintenance supervisor and a public works mechanic have attended

EVT certification training. All maintenance involving fire department vehicles is entered into a database by public works.

Preventive Maintenance is a step taken to keep equipment in a better condition and not wait until it is in dire need of maintenance. It is designed in such a way so that it can handle unexpected maintenance requirements. Preventive Maintenance requires things like lubrication, cleaning, adjusting and replacing minor parts so that they do not create a problem in the smooth running of the machine. The objectives of inspection and preventative maintenance service are to ensure that: (a) fire apparatus safely operate to the next scheduled service without a failure; and (b) component service life is maximized. All minor deferred repairs will be completed during the inspection and preventative maintenance service. Inspection and preventative maintenance services shall include fluid analyses including oil and transmission fluid. Fluid samples shall be taken at each oil change interval and tested at a laboratory acceptable to the department. Recurring maintenance is the act of servicing a fire apparatus or a component in order to keep the vehicle and its components in proper operating condition, and to prevent failure or breakdown. Task examples include, but are not limited to, lamp and gauge replacement, scheduled oil changes, coolant and pneumatic hose replacement, belt replacement and adjustment, windshield wiper replacement, brake adjustments, system and component adjustments and calibration, and fastener replacement (Ganguly, 2010).

NFPA 1911, Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus, specifies that “service tests shall be conducted at least annually and whenever major repairs or modifications to the pump or any component of the apparatus that is used in pump operations have been made.” The ISO rating schedule assigns points for pump tests on a prorated scale depending on the results of the tests and the frequency of testing. The test procedures are well-defined in the NFPA standard and require only basic flow- and pressure-measuring equipment. Sample forms to record the results also are included in the standard. It is helpful to have someone

familiar with the tests to supervise the operations, but that is not necessary. In the end, conducting annual pump tests will give an accurate evaluation of pump condition and help spot any problems. It also will provide valuable training for pump operators, as well as provide legal documentation that pumps are in good working order.

### Recommendations

The literature review, data analysis, and survey data provided information to make the following recommendations: (1) Develop emergency vehicle preventative maintenance criteria specific to the needs of the Village of Wilmette while keeping, at a minimum, local, state and national standards, and manufacturers recommendations. (2) The Village of Wilmette should utilize existing public works personnel who are ASE certified to perform routine truck and vehicle repair and preventative maintenance. The public works mechanics should perform all non-warranty repair and maintenance of the fire departments staff and utility vehicles. These mechanics should complete EVT training and certification within three years. (3) Routine repairs and PM should be clearly identified and stated in writing to be used as a guideline by public works mechanics, out of service criteria should also be clearly identified. (4) Developing an accountability system for identifying, communicating, and scheduling repair and preventative maintenance of emergency vehicles. This tracking system should enable the stakeholders to identify a problem through a simple checklist, communicate the need for repairs, and enable all stakeholders to follow the progress of the repair request. (5) All repairs and PM time and material data be entered into a database which should be available to be queried in a report. The report should be available for each individual vehicle and depict all costs associated with that vehicle. (6) Train a fire department member as an EVT, this person would have the responsibility to coordinate the emergency vehicle maintenance program with both public works and any third party vendors. The department EVT should also be able to perform minor repairs and PM to alleviate the workload of the public works mechanic. The department EVT should be able to mitigate any routine

day to day mechanical issues. (7) Developing an evaluation tool which will allow the Fire Chief and Village Administration to evaluate the progress of the program and to highlight any inefficiencies. The evaluations should be completed by all the stakeholders on a regular schedule, this should allow for a more thorough evaluation process by including various views of what results a successful emergency vehicle program should garner. (8) Finally, develop a succession plan for the public works and fire department emergency vehicle maintenance personnel to ensure a seamless transition in the event of a vacancy. This plan should be developed with both short and long term goals in mind and be included in the fire departments strategic plan. As a result of this research, the WFD presented recommendations to the Village Board for approval. The Board approved the drafting of a request for proposal (RFP) for future emergency apparatus maintenance services. The RFP was developed through cooperation from Village of Wilmette personnel including the Public Works Director and Vehicle Supervisor, the Village of Wilmette Procurement Specialist, and both the Fire Chief and Deputy Fire Chief. An outline of a similar RFP was utilized through permission from the Human Resource Manager from Manhattan Beach California. The RFP was distributed for bid with the bid opening in November of 2011.

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Appendix A

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**JOB TITLE:            FIREFIGHTER/PARAMEDIC/EMERGENCY VEHICLE  
                             COORDINATOR**

**DEPARTMENT:      FIRE DEPARTMENT**

**SUPERVISOR:       DUTY CHIEF**

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**POSITION SUMMARY:**

Performs emergency firefighting and emergency medical services including rescue, fire suppression, fire prevention as well as all duties delegated by law, ordinance, rule or regulation or practice or procedure. A substantial amount of time will be spent training and studying methods, techniques, procedures, department property and equipment. Also performs work of moderate difficulty in the maintenance and repair of Fire Department vehicles and equipment.

**ESSENTIAL JOB FUNCTIONS:**

**STATION AND APPARATUS MAINTENANCE:**

Cleans and insures proper operating condition of assigned apparatus including maintenance and minor mechanical repair.

Insures the proper care, working condition, and appearance of all fire department vehicles to which they are assigned.

Cleans and properly maintains the buildings and grounds to which they are assigned.

Monitors the operating efficiency of the apparatus or vehicle assigned to their care and promptly informs their shift officer of any difficulties or irregularities which may affect operation or immediate response.

Performs daily inventory check and maintains adequate supply of all tools, appliances and supplies on the apparatus in their assigned station.

**FIRE SUPPRESSION:**

Reacts and responds to orders during medical, fire and other emergency calls in accordance with Department Standard Operating Guidelines.

Directs and/or supervises others at the scene of an emergency when directed to do so.

Engages in rescue, fire control, extinguishment and property conservation, including the use of fire hoses, ladders and other fire suppression and rescue equipment.

Operates fire apparatus, rescue or other emergency equipment under adverse emergency circumstances.

Becomes and remains familiar with pre-plans, geographical locations, street names and target and special hazards within the response area.

Becomes and remains familiar with the Standard Operating Guidelines of fire ground operations, high rise operations and elevator operations.

**EMERGENCY MEDICAL SERVICE:**

Provides emergency medical care to those in need or when called upon under the direction of the resource hospital.

Becomes and remains familiar with the policy and procedures manual of the emergency medical services system.

Becomes and remains familiar with the Standard Operating Guidelines of the emergency medical services system.

Conducts inspections and inventory of ambulances on a scheduled basis.

Collects patient information and acts upon it.

Prepares written emergency medical services reports and supplemental reports as needed.

Develops and remains familiar with the skills of gaining access and disentanglement of victims from entrapment.

Communicates patient status to physician by radio or telemetry.

Stabilizes patient and transports them to emergency facilities.

**ORGANIZATIONAL SUPPORT:**

Assists the Fire Chief in preparing the department budget and drafting bid specifications on all new vehicles.

Conducts and/or attends continuing educational programs of training and instruction, including attendance at scheduled drills and classes, as assigned. Participates in company fire inspections and in pre-fire surveys.

Develops and maintains required skills and certifications associated with the areas of special instruction and expertise such as:

- Certified Fire Fighter II

- Hazardous Materials I

- Emergency Medical Technician Paramedic

- Certification as mandated by NFPA including ASE and EVT

Prepares clear, accurate and complete reports, logs and documents of any and all activities engaged in.

Becomes and remains familiar with the use of the computer and data entry.

Performs support duties utilizing the telephone, computer terminal and assist with data processing and filing.

**VEHICLE AND EQUIPMENT MAINTENANCE:**

Examines and locates mechanical defects in a wide variety of Fire Department vehicles, including engines, trucks, squads, ambulances, utility vehicles vans and passenger vehicles.

Performs mechanical repairs to Fire Department vehicles and related equipment.

Disassembles, repairs grinds or replaces work parts.

Fits new parts and adjusts motors, pumps, compressors, generators, carburetors and fuel injectors, governors, clutches, transmissions, differentials, brakes and steering gear.

Performs minor body repairs to Fire Department vehicles.

Conducts a preventive maintenance program.

Maintains a proper inventory of automotive parts and supplies.

Maintains all records of maintenance performed on vehicles.

**RISK CARE MANAGEMENT:**

Develops and maintains required skills in the operation and safety of respiration equipment, apparatus and small tools during operations.

Corrects and reports all non-safe conditions or hazards to their supervisor.

Develops and maintains knowledge of National Fire Protection Association(NFPA) Safety Standards and Illinois Department of Labor Standards(IDOL).

**FIRE PREVENTION AND EDUCATION:**

Conducts fire education by participating in community activities.

Makes presentations to groups and individuals on subjects related to safety prevention and education.

Conducts fire prevention and safety inspections.

Conducts pre-plan surveys of buildings and other locations.

**TECHNICAL:**

Develops and maintains required skills to operate fire department apparatus and calculate the needed flow and pressure of water through each hose line being utilized.

Develops and maintains skills to operate fire department apparatus during critical operations.

Firefighter/Mechanics may be assigned additional job functions as deemed necessary or desirable by the Village.

## **OPERATING EQUIPMENT REQUIREMENTS:**

Including, but not limited to:

Fire Apparatus	Forcible Entry Tools	General Office Equipment
Hose Appliance	Mechanical ventilation Tools	Axes
Portable Hydraulic Tools	Pike Poles	Chain and Circular Saws
Hurst Tools	CO Detectors	Ladders
EKG Monitor	O2 Kit	Trauma Kit
Child-Birth Kit	Hare Traction Splint	Stretcher Operations
Telemetry Radio	Ked Board Splinting	Immobilization techniques

## **WORKING CONDITIONS:**

The essential functions of the position are performed in and affected by the following environmental factors:

Operating both as a member of a team and independently at incidents of uncertain duration.

Spending extensive time outside exposed to the elements.

Tolerating extreme fluctuations in temperature while performing duties. Must perform physically demanding work in hot ( up to 400 degrees F), humid (up to 100%) environments while wearing equipment which impairs bodily cooling mechanisms. Experiencing frequent transitions from hot to cold and from humid to dry elements. Working in wet, icy or muddy areas. Performing a variety of tasks on slippery and/or hazardous surfaces. Working in areas where sustaining traumatic or thermal injury is possible. Facing possible exposure to carcinogenic dusts, toxic substances or organic solvents through inhalation or skin contact. Wearing personal protective equipment that weighs approximately 50 pounds while performing these tasks.

Performing physically demanding work while wearing positive pressure breathing equipment with 1.5 inches of water column resistance to exhalation at a flow of 40 liters per minute.

Performing complex tasks during life-threatening emergencies.

Working for long periods of time requiring sustained physical activity and intense concentration.

Facing life or death decision during emergency conditions.

Making rapid transition from rest to near maximal exertion without warm-up periods.

Operating in environments of high noise, poor visibility, limited mobility at heights and in enclosed or confined spaces.

Using manual and power tools in the performance of duties.

Relying on senses of sight, hearing smell and touch to help determine the nature of emergency, maintain personal safety, make critical decisions in a confused, chaotic and potentially life threatening environment, throughout the duration of the operation.

Raising, climbing and working from ground and aerial ladders without work inhibiting fears of heights.

Rescuing by carrying or dragging an adult from a burning structure or other dangerous situation.

Operating hand and power tools, in both emergency and non-emergency situations.

Dragging hoses up to five inches in diameter, both charged and uncharged, limited distances, both horizontally and vertically.

Connecting hose couplings.

Understanding and carrying out oral and written orders and assignments, in both emergency and non-emergency situations.

Assimilating, retaining and effectively using geographic knowledge concerning the Village and surrounding vicinity.

Facing exposure to grotesque sights and smells associated with illness, major trauma and burn victims.

Facing possible exposure to infectious agents such as Hepatitis B and HIV.

Lifting and carrying stretcher up or down flights of stairs with a minimum of one person to assist.

Adhering to attendance requirements of the shift schedule that requires working on Saturdays, Sundays, and holidays. This position involves regular and irregular shift work depending on fill-in needs and mandatory call backs. Work shifts are normally 24 hours in duration, but may be extended in the event of emergency, disaster, personnel shortage, work load or work-in-progress.

May be required to work a non-shift schedule for periods of time for the purpose of training or other tasks deemed necessary.

**KNOWLEDGE, SKILLS AND ABILITIES:**

Ability to successfully complete the State requirements to obtain a firefighter II certificate within one year of employment. The ability to successfully complete the Illinois Department of Public Health requirements to obtain Emergency Medical Technician Paramedic Certification. The ability to successfully complete the State requirements to obtain Hazardous Materials I Certification.

Good knowledge of the principles of gasoline, diesel and hydraulic mechanics as applies to the maintenance and repair of firefighting vehicles. Good knowledge of the tools and equipment of the trade. Good knowledge of preventive maintenance inspection methods and the ability to learn a wide variety of firefighting duties.

Ability to diagnose the more common defects of firefighting EMS vehicles. Ability to detect by inspection any worn or broken parts or incorrectly adjusted parts or assembly. Ability and sufficient strength to perform long and arduous work under adverse conditions.

Skill in the use of mechanical tools and equipment and in the diagnosis and repair of a wide variety of firefighting vehicles and equipment. Individual must comply with the Safety procedures established by the Village of Wilmette and the Wilmette Fire Department.

**REQUIRED EXPERIENCE AND TRAINING:**

Must be a high school graduate or equivalent and must be able to meet the physical standards established by the Village of Wilmette Board of Fire and Police Commissioners at the time of examination. Must possess a valid Driver's License. Must have four years automotive repair experience, including one year in the maintenance of firefighting vehicles and hydraulic mechanisms and maintain ASE and EVT certifications. . Must obtain and maintain Firefighter III and advanced emergency medical technician/paramedic certification.

**PHYSICAL ACTIVITIES:**

The position requires the employee to have and maintain the physical condition to subdue resisting individuals; run to persons requiring emergency assistance; lift and carry equipment and injured/deceased persons; force entry into buildings; climb flights of stairs/ladders; walk, stand or sit for long periods of time (including driving); endure exposure to extreme weather and disease; perform life-saving procedures (CPR, first-aid, etc.); communicate effectively, verbally and non-verbally; operate required equipment; perform job related tasks and functions; and provide assistance to citizens and co-workers in distress, including but not limited to independently carrying or dragging unconscious people.

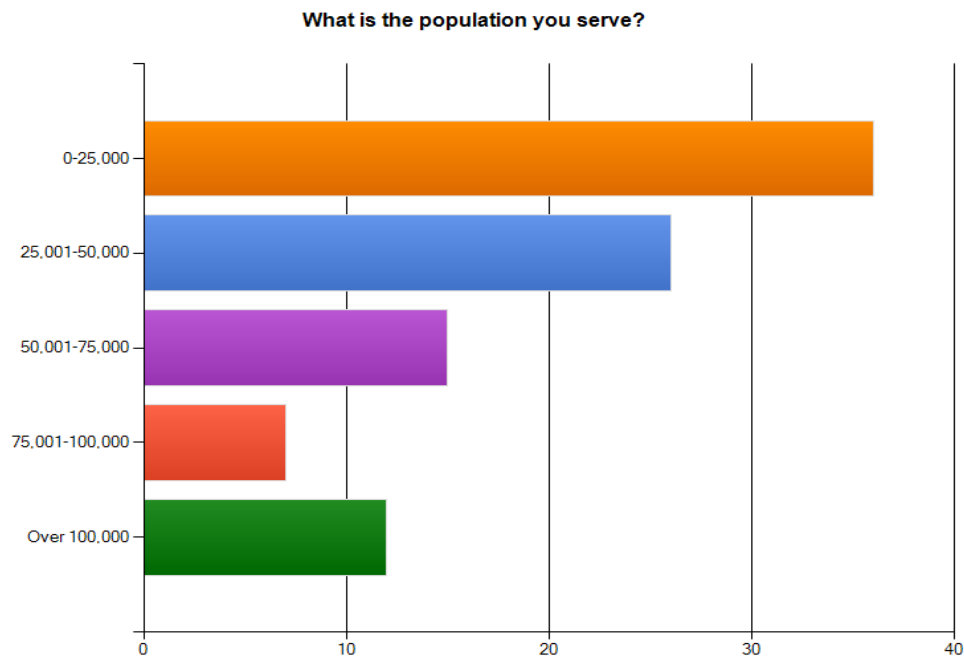
Individual must be able to perform the following physical activities with reasonable accommodations: balancing(minimal), bending(minimal), climbing(minimal), crouching (minimal), crawling(minimal), kneeling(minimal), reaching(moderate), standing(frequent), walking(frequent), sitting(minimal), pushing(minimal), pulling(minimal), lifting(minimal), fingering(extensive), grasping(frequent), stooping(minimal), feeling(extensive), talking(minimal), hearing(minimal), repetitive motions(extensive), reading(minimal), writing(minimal), driving(minimal) and visual acuity(minimal) and additional physical activities as required.

## Appendix B

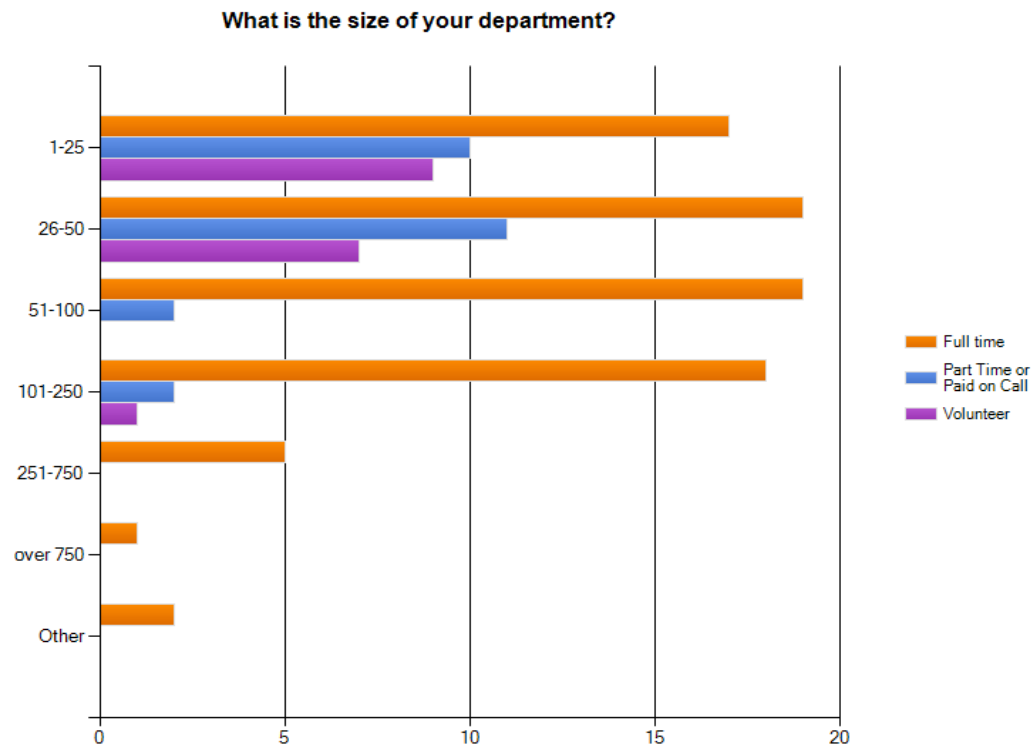
<b><u>Engine 27 (205)</u></b>			
At Station 27 - 747 Illinois Rd.		<b><u>Ambulance 26 (209)</u></b>	
1996 E-One Cyclone Pumper		At Station 27 - 747 Illinois Rd.	
VIN: 4ENBAA83T1006406		2009 Ford F-450	
Engine: Detroit Diesel 350 HP 6V92 552ci.(Model:80677K45)		VIN: 1F DAF6R39EA46143	
Transmission: Allison HD 4060P		6.4 liter Diesel	
Hale 1250 Pump OSMG150-21		Road Rescue Body	
500 gallon Tank		GWR: 16,500	
6 KW Fabco Hydraulic Generator		Height: 10'	
50 gallon Fuel		Miles:12,700	
Height: 9'5"		Hours: 1280	
GWR: 37,800			
93,500 Miles		<b><u>Ambulance 27 (212)</u></b>	
10830 Hours		At Station 27 - 747 Illinois Rd.	
		2006 Ford F-450	
<b><u>Engine 27R (206)</u></b>		VIN: 1FDX46P87EA73408	
At Station 27 - 747 Illinois Rd.		6.4 L Diesel	
1989 E-One Cyclone Pumper		Horton Body	
VIN: 46JBBA8XK1002899		GWR:16,000	
Engine: Detroit Diesel 350 HP 6V92 552ci 350 HP		Height: 9'6"	
Transmission: Allison HT 740		Miles: 32,100	
Hale 1500gpm Pump		Hours: 3300	
500 gallon Tank			
50 gallon Fuel		<b><u>Ambulance 26R (211)</u></b>	
Height: 9'5"		At Station 27 - 747 Illinois Rd.	
GWR: 38,200		2001 Ford F-350	
Miles: 85,300		VIN: 1FDWF36F61EA58877	
Hours: 4700		7.3 l Diesel	
		Road Rescue Body	
<b><u>Tower 26 (204)</u></b>		GWR: 12,500	
At station 26 1304 Lake Ave.		Height: 9'6"	
2009 E-One Cyclone II 95' Tower Ladder		Miles:74,400	
VIN: 4EN3ABA8991005554		Hours: 7220	
Engine: Cummins ISM 500			
Transmission: Allison TD61-1180			
Hale 1500gpm QMAX150-23 Pump			
475 Water Tank			
25 gallon Foam Tank			
Akron Foam system			
Onan 10KW Hydraulic Generator			
Fuel: 65 gallon			
GWR: 76,100			
Height: 11'11"			
Length: 46'5"			
Miles: 10,000			
Hours: 1200			
<b><u>Tower 26R (202)</u></b>			
At station 26 1304 Lake Ave.			
1992 Pierce Dash 100ft Tower			
VIN: 4P1CA02G2NA000658			
Engine: Detroit			
Transmission: HT 740			
Waterous 1500gpm Pump			
Onan 6KW Diesel generator			
300 Water Tank			
Height: 11'6"			

Appendix C

Question 2

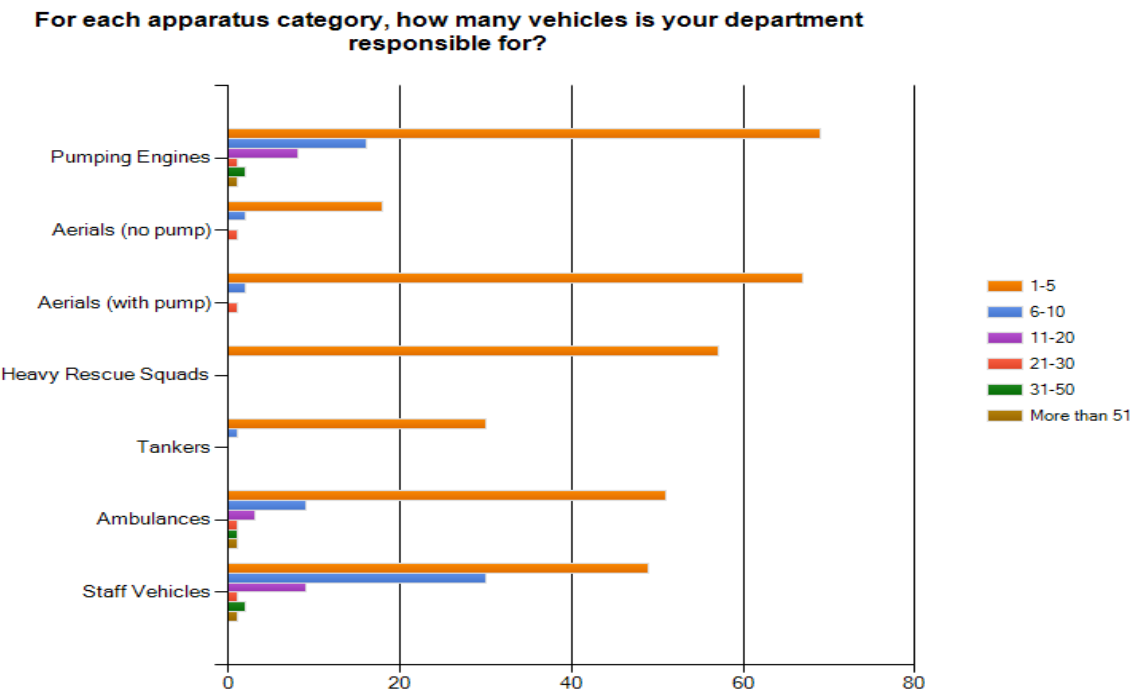


Question 3

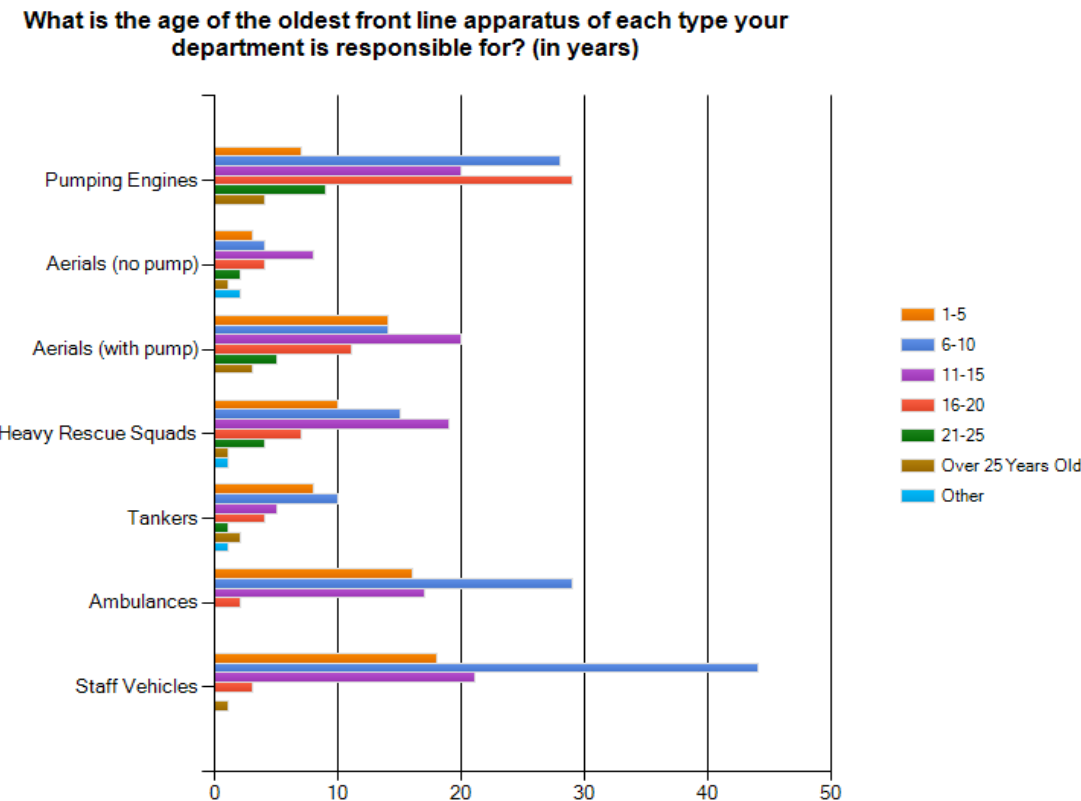




Question 4

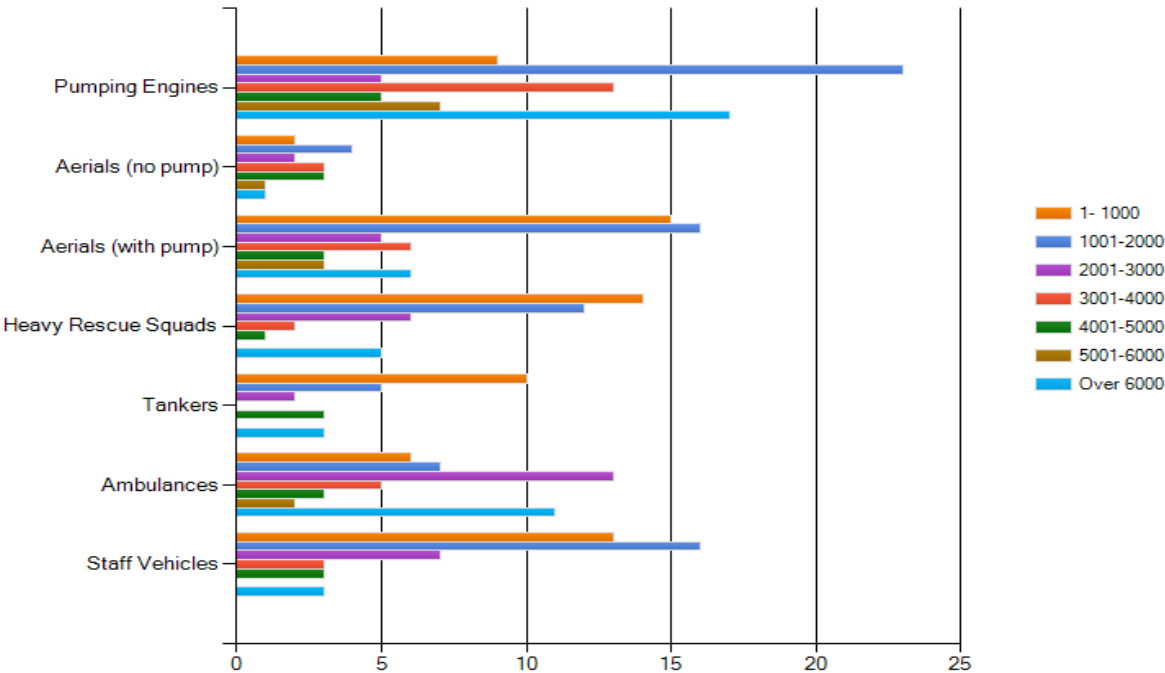


Question 5



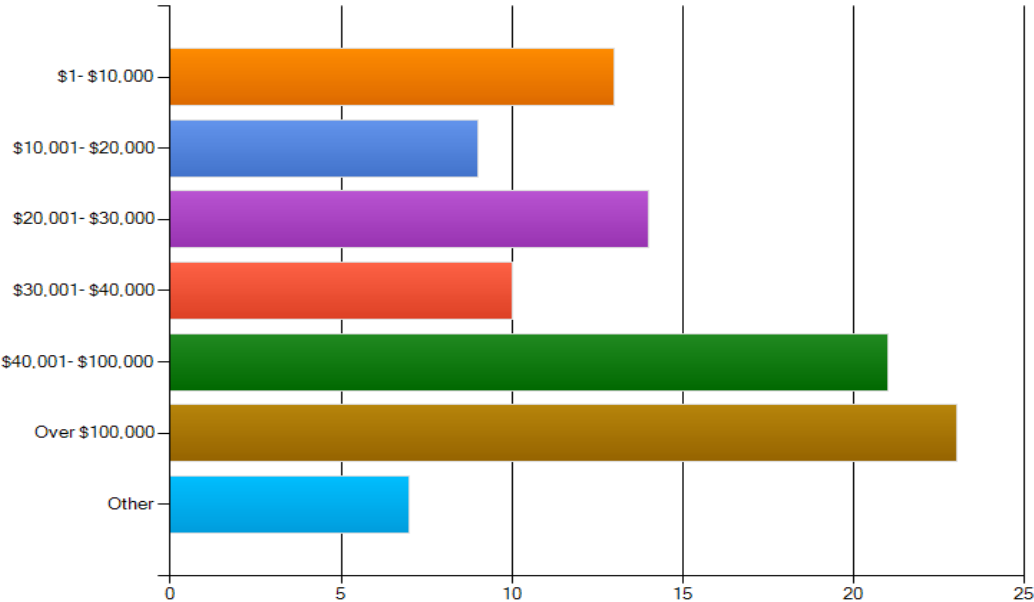
Question 6

For each category of apparatus, how many engine hours does your oldest frontline vehicle have?

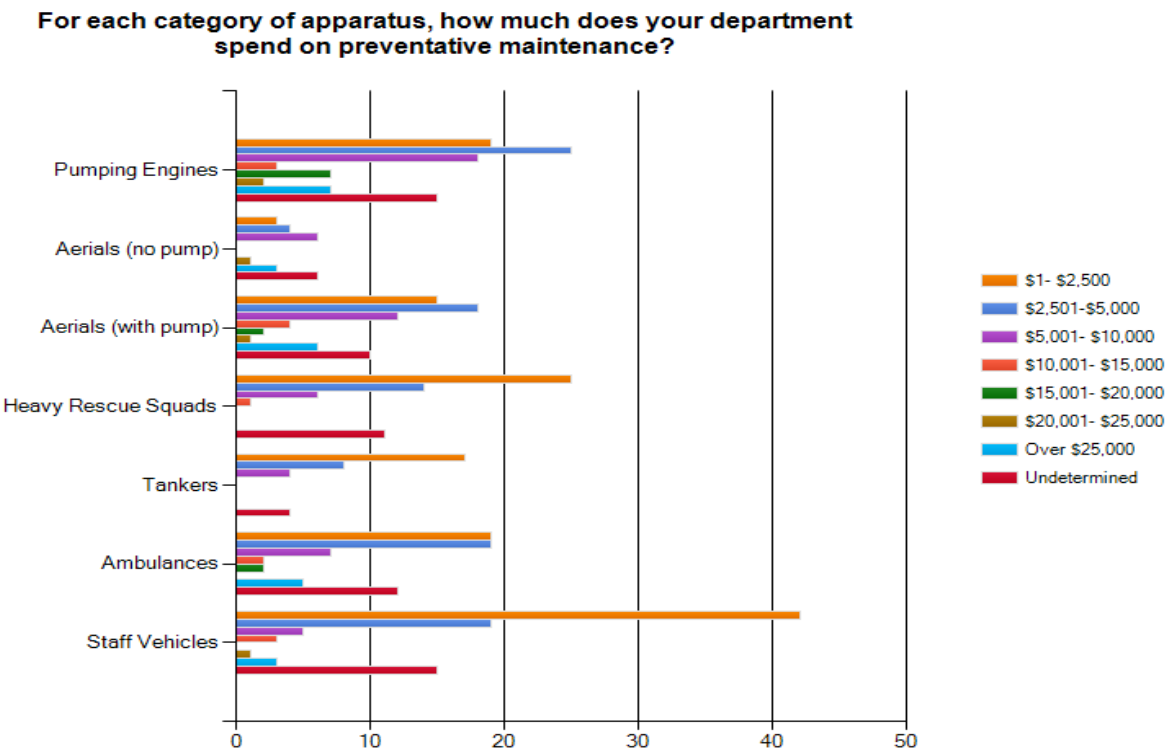


Question 7

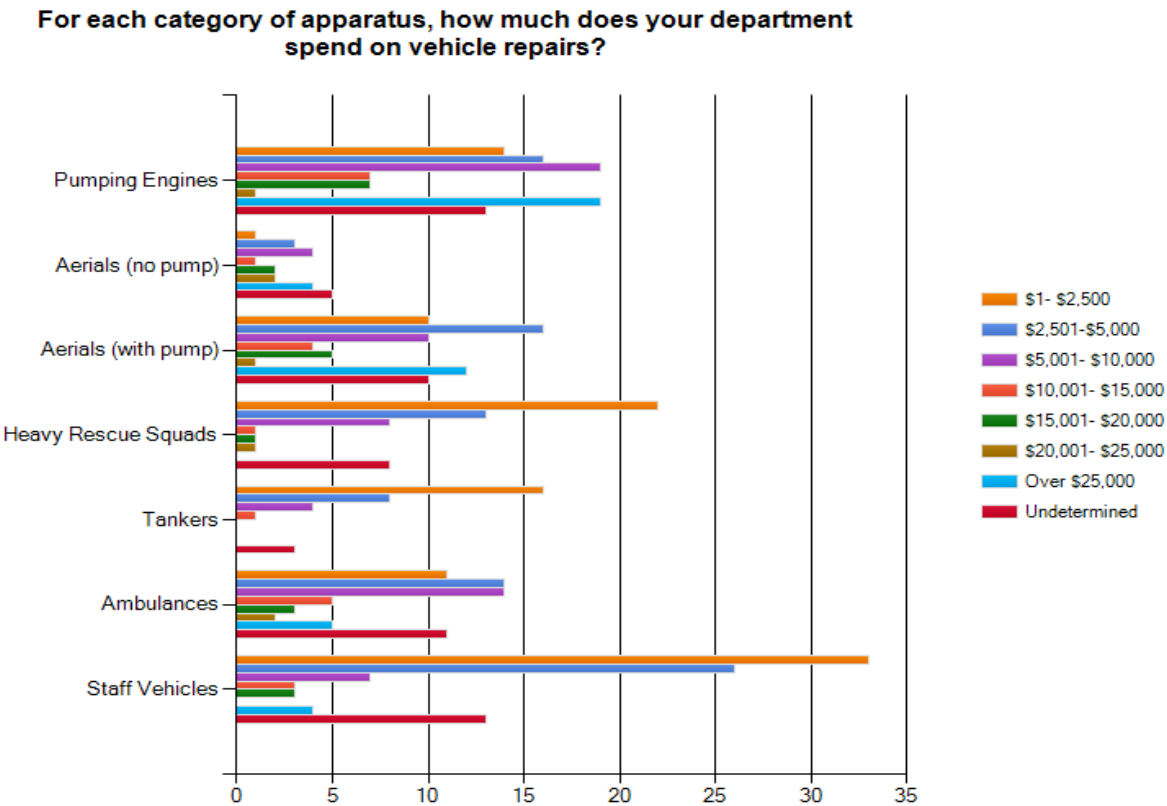
For the apparatus your department is responsible for, what is your average vehicle maintenance budget for the last three years?



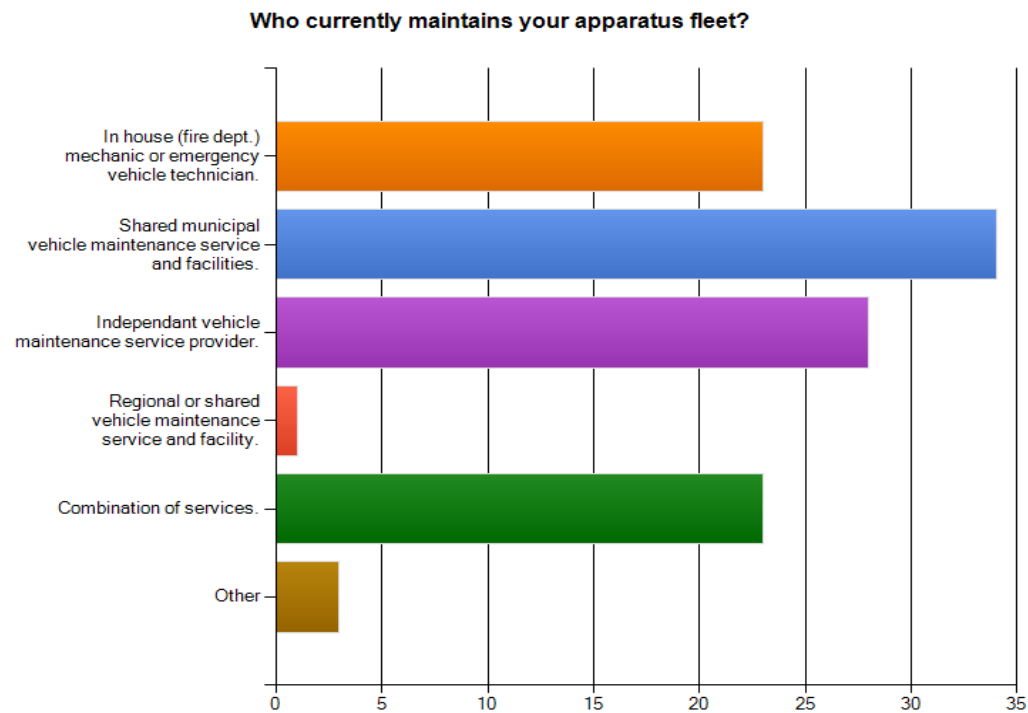
Question 8



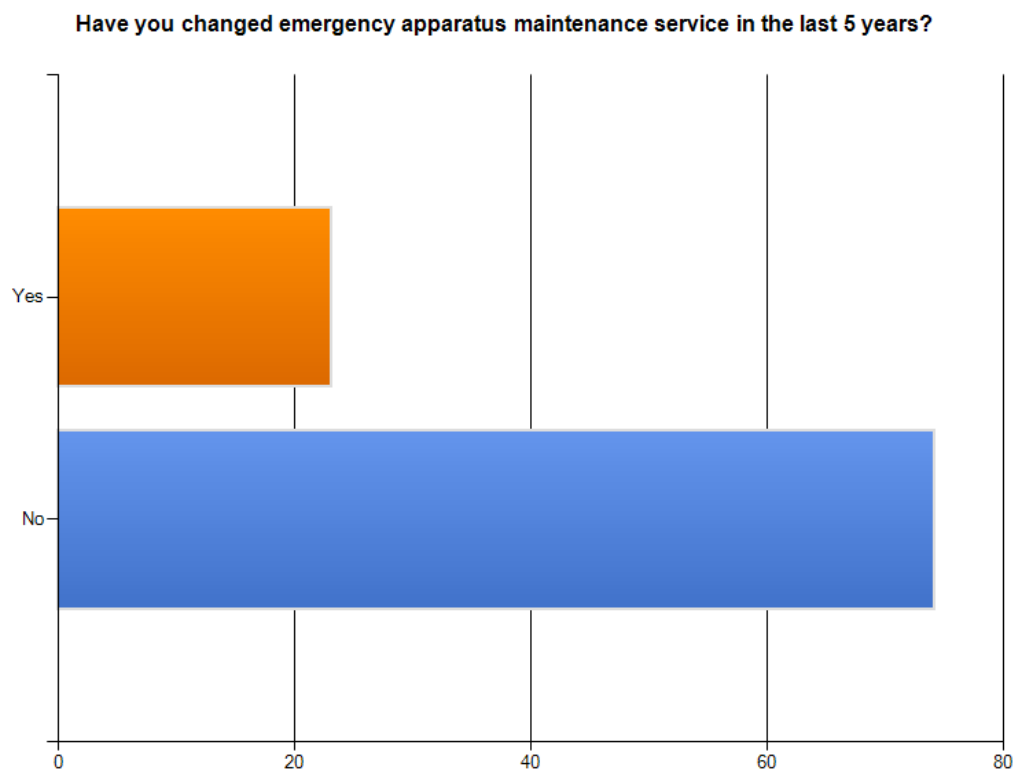
Question 9



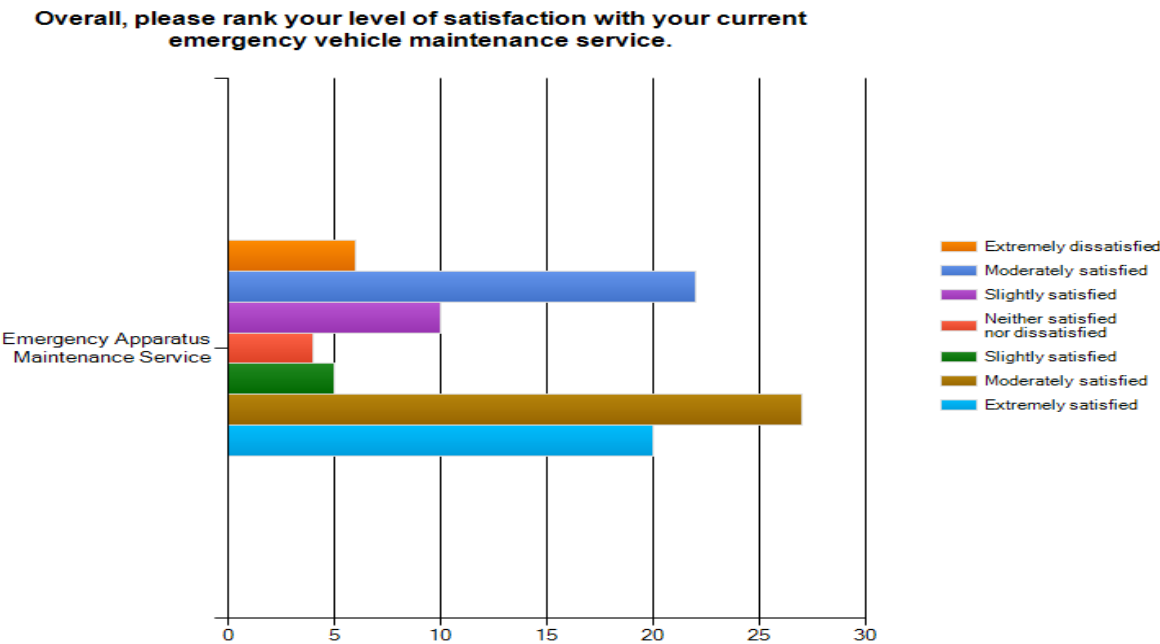
Question 10



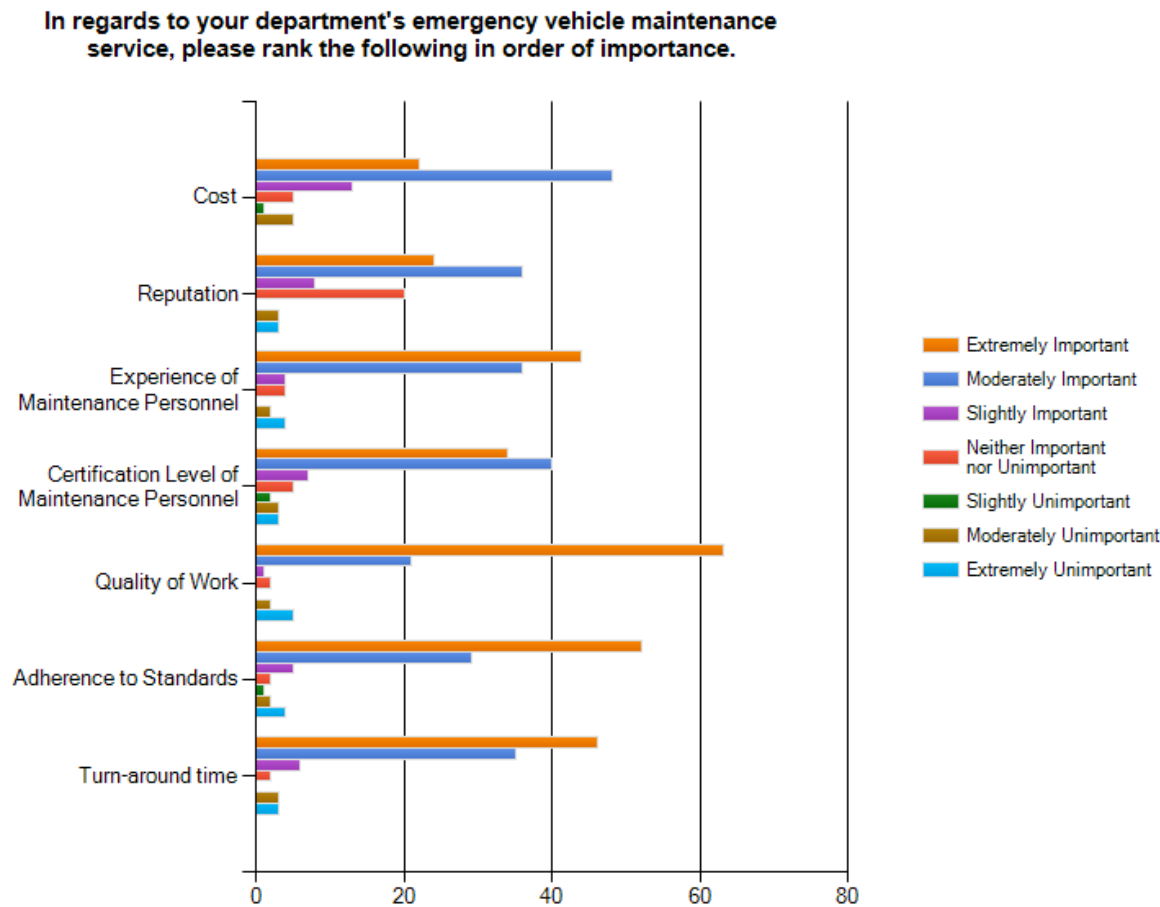
Question 11



Question 12



Question 13



## Appendix D

### Open Ended Answers to Question 11

Have you changed emergency apparatus maintenance service in the last 5 years? If yes please explain.

We go to a certified emergency vehicle repairman.

10/3/2011 2:33 PM [View Responses](#)

Cost

10/3/2011 1:26 PM [View Responses](#)

we use to use certified and now we share a mechanic with Huntley fire

9/30/2011 2:56 PM [View Responses](#)

Pump testing is now performed by a mobile company at the station.

9/30/2011 11:27 AM [View Responses](#)

We actually servicing more than past years , due to major problems due to lack of maintenance.

9/30/2011 9:34 AM [View Responses](#)

Poor performance and inability to adequately troubleshoot/repair apparatus in a timely manner.

9/30/2011 9:13 AM [View Responses](#)

Somethings we are able to do in house now and we dont send everything out to be worked on.

9/29/2011 11:57 PM [View Responses](#)

The FD dedicated mechanic at Public Works left and was replaced by another mechanic about 5 years ago.

9/29/2011 2:39 PM [View Responses](#)

Not satisfied with the overall performance of the service being provided by the service center. Long delays in having apparatus being returned to inservice status, mutiple returns to the service center for same type repairs, lack of communication regarding repairs needed or completed, overpricing or multiple charges.

9/29/2011 11:13 AM [View Responses](#)

Went to are own village garage for repairs now and hired a part time maintenance person.

9/29/2011 10:15 AM [View Responses](#)

wasnt happy with the past company and which to someone else

9/29/2011 8:12 AM [View Responses](#)

Most go to the municipal Fleet facility, used to send out for repair

9/28/2011 4:30 PM [View Responses](#)

Have used a variety of service facilities trying to find a facility that fits our needs

9/28/2011 3:31 PM [View Responses](#)

General Services Fleet Administration took over responsibility of Fleet Management for the Fire Department in July of 2008

9/28/2011 3:04 PM [View Responses](#)

Bid process

9/28/2011 12:17 AM [View Responses](#)

We went from being reactive to being proactive and put a preventive maintenance program in place.

9/28/2011 12:03 AM [View Responses](#)

This past year, just instituted a in-house maintenance program to save money.

9/28/2011 9:29 AM [View Responses](#)

Service from every 3000 to 4000 miles

9/28/2011 8:57 AM [View Responses](#)

Went from mostly inhouse repairs to mostly outsourcing

9/28/2011 8:02 AM [View Responses](#)

We do all the maintenance in house

9/28/2011 7:16 AM [View Responses](#)

Unhappy with preformance and cost of previous provider

9/28/2011 6:53 AM [View Responses](#)

In-House mechanic retired. We switched to a combination of minor in-house repairs and outsourcing larger repairs.

9/27/2011 10:21 PM [View Responses](#)

Recent retirement of the long time mechanic

9/26/2011 12:02 AM [View Responses](#)

EVT retired

9/26/2011 9:07 AM [View Responses](#)

## Open Ended Answers to Question 12

Overall, please rank your level of satisfaction with your emergency vehicle maintenance service.

We have 3 EVT mechancs who are are very dilgent at their jobs. They put safety over production to ensure reliable equipment for us

10/13/2011 3:30 PM [View Responses](#)

High quality, attention to detail and quick turn around time by our City Fleet Services. They put the FD first in line for any service, maintenance or repairs.

10/5/2011 2:27 PM [View Responses](#)

THEY ARE EXTREMELY ATTENTIVE TO OUR NEEDS. TURN AROUND TIME IS EXCELLENT.

10/4/2011 2:12 PM [View Responses](#)

It has just worked very well for us and have good working relationship.

10/3/2011 1:26 PM [View Responses](#)

Our DPW does the maintenance on our vehicles. They are very timely and the repairs "almost always" do not need followup.

10/3/2011 10:12 AM [View Responses](#)

We have a great working relationship with our fleet services. The method for communicating needed repairs and other issues is excellent. Long ago, the City developed a priority list for the City's entire fleet and the FD's apparatus have been classified as the #1 priority based on the importance of the vehicles to public safety (MICUs are #1, Pumpers and the Ladder Truck are second). If at any time an "emergency repair" is needed, the mechanics will drop what they are doing and tend to the fire apapratus to recify the issue and get it back on the street ASAP. The mechanics will also come in from home when off-duty to help with any issues if deemed emergent.

9/30/2011 9:04 PM [View Responses](#)

Self explanatory.

9/30/2011 12:01 AM [View Responses](#)

The City Garage only has one mechanic to work on our fleet and the Police vehicles. We have a hard time getting vehicles fixed the first time they go to the garage and getting the repairs done in a timely manner. The garage is also too small to work on any of our Aerial apparatus and only has 2 bays to work on larger vehicle such as the pumpers.

9/30/2011 9:56 AM [View Responses](#)

I am guessing the answers should range from extremely dissatisfied to extremely satisfied in a left to right fashion, I am slightly dissatisfied with our current maintenance service.

9/30/2011 9:13 AM [View Responses](#)

While our Public Works Department does our vehicle maintenance, we have one mechanic that works exclusively on Fire Department apparatus. We also send this mechanic to various FD apparatus related seminars annually and he is consulted when we purchase apparatus and make factory inspections of new or refurbished apparatus.

9/29/2011 2:39 PM [View Responses](#)

The fire department has a full time mechanic dedicated to the departments vehicles. Vehicle down time is minimal. Most importantly, vehicles can be depended upon to work the way they were designed.

9/28/2011 3:51 PM [View Responses](#)

I think this answer was meant to be moderately dissatisfied, which is where I am at with this question.

9/28/2011 3:48 PM [View Responses](#)

We need another mechanic, we have only one to service all of our apparatuses.

9/28/2011 2:18 PM [View Responses](#)

We are currently using a quarterly PMI and have notice that our repairs are going down as well as our down time. Our village garage are capable of completing all services making maintenance easy.

9/28/2011 12:03 AM [View Responses](#)

here again in house

9/28/2011 7:16 AM [View Responses](#)

### Open Ended Answers to Question 13

In regards to your department's emergency vehicle maintenance service, please rank the following in order of importance: cost, reputation, experience of maintenance personnel, certification level of maintenance personnel, Quality of work, adherence to standards, and turn-around time.

Controlling costs is essential. Turn around time needs to be quick because we have a limited supply of reserve vehicles. The remaining categories are ranked high because the majority of the apparatus are emergency vehicles.

10/19/2011 10:17 AM [View Responses](#)

Cost, experience, certification and Adherence to Standards are extremely important with regards to our department's emergency vehicle maintenance service. We have budgetary constraints that do not allow for anything short of quality work which meets the standards and our personnel insist on experienced and certified maintenance personnel.

10/14/2011 3:59 PM [View Responses](#)

We have only one reserve pumper and one reserve ambulance, therefore when we need service, Fleet Services understands our needs and helps get our units back on the road quickly.



10/5/2011 2:27 PM [View Responses](#)

I believe an industry standard should be maintained for the safety of personel and our costumers

10/5/2011 10:33 AM [View Responses](#)

WE'RE IN THE EMERGENCY SERVICES BUSINESS. ALL OF THESE THINGS ARE PARAMOUNT.

10/4/2011 2:12 PM [View Responses](#)

EVT Certifications, experience, quality of work and adherence to standards are all extremely important. Our apparatus has to be in top shape for the safety of our personnel, the citizens and so we can ensure dependability of our apparatus 24/7.

10/3/2011 9:09 PM [View Responses](#)

Money is tight and needs to be spent wisely.

10/3/2011 7:34 PM [View Responses](#)

It is important to have maint. personnel who are familiar with the type of apparatus but the particular apparatus. The quality is self explanatory and the turn-around time is never quick enough.

10/3/2011 4:02 PM [View Responses](#)

With todays economic environment it is very important to keep cost measures down. Due to the nature of our business it is also important to have certified mechanics as well as high quality work and a quick turn-around. The quick turn-around is important due to a limited amount of backup apparatus.

10/3/2011 10:12 AM [View Responses](#)

The quality of work is important to us because if the work is not done correctly, our people, as well as the public, are at jeopardy. Also, we would have to take the vehicle back to have repair done again, if not done correctly the first time. It is all about quality.

10/3/2011 8:19 AM [View Responses](#)

The most important factor when it comes to maintaining emergency vehicles is the people who work on them. Coupling education and experience is a solid recipe for excellent work, specifically work quality. Quality of work commonly translates to less down-time (preventative maintenance and repairs). While turn-around time is important, our Department is able to absorb a vehicle being down for a little while because we have reserve apparatus. It is essential that the mechanics complete the work to the industry standard (current certification helps with this). Standards exist to improve the safety of the emergency personnel.

9/30/2011 9:04 PM [View Responses](#)

We have a small fleet and small budget and need our vehicles in good shape and running all the time

9/30/2011 2:56 PM [View Responses](#)

Because those are the most important to the saftey of our firefighters.

9/30/2011 2:12 PM [View Responses](#)

Spare apparatus is at minimum, repairs need to be performed properly, quickly and by qualified personnnel. NFPA standards are minimum.

9/30/2011 12:01 AM [View Responses](#)

I have to have the confidence that when we send a vehicle to the garage that it gets fixed right, on time and that it is still compliant when it is returned. The only way to assure this is to have a well trained mechanic that is current with emergency vehicle technology and knows the standards that apply to fire department vehilcles

9/30/2011 9:56 AM [View Responses](#)

I am spending tax payer dollars, I want experienced and certified persons working on apparatus, Quality must be good so that I don't have down time due to repeat service and I hope that service is rapid due to small fleet.

## Fire Apparatus Maintenance for the Village of Wilmette 50

9/30/2011 9:34 AM [View Responses](#)

Cost, Quality of Work, Adherence to Standards and Turn-around time - there is only so much money to effect repairs. I want the most bang for my buck. I don't care about reputations as long as I am happy with the service I pay for.

9/30/2011 9:13 AM [View Responses](#)

Turn around time is very important. We have a great shop in the city that keeps us running and gets us right in.

9/29/2011 11:57 PM [View Responses](#)

Adherence to standards is extremely important because of the legalities involved if you don't

9/29/2011 6:59 PM [View Responses](#)

We are very careful to only use outside vendors that are authorized by the OEM. Our in house mechanic is regularly sent to seminars on FD apparatus specific repairs.

9/29/2011 2:39 PM [View Responses](#)

With strapped budgets the cost of vehicle maintenance can certainly put a strain on budgets.

9/29/2011 11:13 AM [View Responses](#)

Keeping front line apparatus in service as often as possible provides them members and the community with the highest possible level of service and safety

9/29/2011 10:46 AM [View Responses](#)

Although overall certification is important experience is equally important when dealing with fire apparatus. In some cases (eg brakes and braking systems) certification is absolute. The quality of work speaks for itself as it is an indicator over time that will not have repeated visits thereby reducing down-time of the vehicle.

9/29/2011 8:29 AM [View Responses](#)

We are concerned with the safety of the personnel responding and following the required standards for service and certification. The recent accreditation process definitely played a part in highlighting these important issues. The shop is also Blue Ribbon Certified.

9/29/2011 7:43 AM [View Responses](#)

Again, our service is done in house (by a department we do not control) and we have no say in how it gets done. Quality is an issue and we are fighting to get it improved as we speak

9/28/2011 4:30 PM [View Responses](#)

Mechanics should be experienced to do the job

9/28/2011 4:20 PM [View Responses](#)

Experience of the maintenance personnel is extremely important to the department because it assures the vehicles are kept up to the standards of that particular vehicle. The quality of work makes certain the vehicles spend minimal time O.O.S. Turn around time keeps the front line vehicles at the front line.

9/28/2011 3:51 PM [View Responses](#)

Quality of work - I don't want it to have to be brought back for the same issues. Turn around time is important because we are a small agency and to have our equipment down for a long time is hard on us.

9/28/2011 3:48 PM [View Responses](#)

The maintenance program manages our greatest resources next to personnel. It is very important that the resources spent on maintenance and repair provide the absolute work possible.

9/28/2011 3:47 PM [View Responses](#)

What's to explain. these issues are extremely important.

9/28/2011 3:43 PM [View Responses](#)

Cost, reputation, experience, adherence to standards, and quality are all necessary components of high quality vehicle maintenance.

9/28/2011 3:36 PM [View Responses](#)

These areas are very important when maintaining fire apparatus

9/28/2011 3:31 PM [View Responses](#)

Strive to meet NFPA/ EVT standards and guidelines.

9/28/2011 3:22 PM [View Responses](#)

Cost containment during times of shrinking budgets is critical. Less experienced personnel will often require more time and effort to complete maintenance or repairs, resulting in reduced efficiency. Additionally, the lack of quality in their work can in cases result in decreased effectiveness that equals increase turn-around times and overall costs for Fleet operations.

9/28/2011 3:04 PM [View Responses](#)

Experience, certification level, quality of work and standards give some assurance that the apparatus will perform as expected and that the useful life of the apparatus will be extended.

9/28/2011 1:27 PM [View Responses](#)

All these are related to keeping vital equipment working, reliable, and available.

9/28/2011 1:26 PM [View Responses](#)

Extremely Important. I feel that we need to adhere to all current standards for the safety of our men and Turn around time is important(doesn't always happen) so that our front line equipment is always ready.

9/28/2011 12:42 AM [View Responses](#)

Due to the fact these are emergency response vehicles, and need to be treated by experienced/trained individuals. Lives depend on the response of these vehicles.

9/28/2011 12:25 AM [View Responses](#)

Emergency vehicles! no need to say more!

9/28/2011 12:17 AM [View Responses](#)

Our fire department personnel deserve the best appartatus available. If the mechanics cant fix it the first time and it needs to go back it creates more down time.

9/28/2011 12:03 AM [View Responses](#)

We need dependable apparatus on the road and we keep apparatus usually over 30 years, so dependable knowledgeable service technicians is a must.

9/28/2011 9:50 AM [View Responses](#)

When dealing with fire service apparatus, we must insure that our vehicles are safe and ready to respond at all times. I do not think that this requires further explanation.

9/28/2011 9:44 AM [View Responses](#)

We are unable to allow our vehicles to be out of service for extended periods of time without having to rent an ambulance. It is very important to us to have qulaified individuals to work on our vehicles.

9/28/2011 9:30 AM [View Responses](#)

Want qualified people working on the apparatus with quick turn around time.

9/28/2011 8:02 AM [View Responses](#)

I want parts ordered ahead of time so when the unit is taken out of serviice work is being done and unit is not just waiting for parts. Qualified and experienced personnel are just as important if not more so than cretifications.

9/28/2011 6:53 AM [View Responses](#)

Some repairs require the appropriate level of certification, to reduce liability in the even of an accident or equipment failure.

9/27/2011 10:21 PM [View Responses](#)

Would seek to have the work completed by well experienced and certified EVT. Less OOS time is better. We would know what we are getting if the mech. adheres to recognized standards

9/26/2011 12:02 AM [View Responses](#)

#### Open Ended Responses to Question 14

If there was one thing you would change regarding your current emergency vehicle maintenance program or service, what would it be?

#### LOWER COST

10/19/2011 10:17 AM [View Responses](#)

To have a full time maintenance coordinator to handle all preevntative maintaince and

10/14/2011 3:59 PM [View Responses](#)

I'd have a fulltime fire mechanic. Currently, the mechanics we have share their time on other city fleet, such as buses and garbage trucks

10/13/2011 5:18 PM [View Responses](#)

Need to have a reserve aerial or quint.

10/5/2011 2:27 PM [View Responses](#)

Have a dedicated shop for fire apparatus

10/5/2011 10:33 AM [View Responses](#)

Hire a more experienced and better qualified fleet maintenance staff.

10/3/2011 9:09 PM [View Responses](#)

Have a couple of bids come in for new providers.

10/3/2011 7:34 PM [View Responses](#)

Priority given to the public safety section of apparatus throughout the year.

10/3/2011 4:02 PM [View Responses](#)

Preferably a qualified in-house mechanic would serve as the best.

10/3/2011 2:33 PM [View Responses](#)

To have our own dedicated person.

10/3/2011 1:26 PM [View Responses](#)

A better notification system when things are repaired. Our members complain when they take a vehicle in and it comes back and they aren't sure what all was done on it.

10/3/2011 10:12 AM [View Responses](#)

More fire truck mechanics

10/3/2011 9:13 AM [View Responses](#)

We would be in control of the funds instead of the city garage.

10/3/2011 8:19 AM [View Responses](#)

Nothing

9/30/2011 9:04 PM [View Responses](#)

1.--Make the service department more accountable for their entire operation.

9/30/2011 6:08 PM [View Responses](#)

I wish they were a little closer

9/30/2011 2:56 PM [View Responses](#)

Have the luxury of time to perform more undercarriage cleaning and touch up.

9/30/2011 12:01 AM [View Responses](#)

none

9/30/2011 10:02 AM [View Responses](#)

Develop a method to report and track maintenance issues. This system must be common to both the garage and Fire Department.

9/30/2011 9:56 AM [View Responses](#)

Have a city mechanic who was certified that would be available at any time.

9/30/2011 9:34 AM [View Responses](#)

I feel the most cost effective/performance related maintenance program would be an in-house or shared maintenance technician. I would not use the over-priced, under-performing maintenance companies that are currently available.

9/30/2011 9:13 AM [View Responses](#)

We need to be on a fleet rotation. We just got 2 new trustees and there goal is to get on vehicle rotation with the officers.

9/29/2011 11:57 PM [View Responses](#)

Having an in house mechanic, that would eliminate constant shuttling of vehicles to our MS Facility, which is poorly located in our district.

9/29/2011 7:23 PM [View Responses](#)

Have the fire dept. mechanic at the fire station headquarters instead of at the police station

9/29/2011 6:59 PM [View Responses](#)

I think it would be beneficial to have someone from Fleet Maintenance to give a class to all Firefighters explaining what the Firefighters could do to help prolong the life of their vehicles. This would also be a good time to explain what type of maintenance is done and why.

9/29/2011 4:15 PM [View Responses](#)

To have an in house maintenance person

9/29/2011 4:00 PM [View Responses](#)

While it would be the greatest if we could always have the newest and best of apparatus, we have to live with the realities of the world. We keep our apparatus longer and maintenance costs go up for every year we keep them, but we are lucky to have both an excellent maintenance staff, but also to have a reserve fleet that allows us to always keep a good vehicle on the street and minimize lost time due to equipment failures.

9/29/2011 2:39 PM [View Responses](#)

Understanding and participating in the cost of the service work

9/29/2011 10:46 AM [View Responses](#)

Currently the fire agency and the municipal service department utilize different computer software programs to track vehicle maintenance. A single system would assist in coordinating the program and tracking what has been completed.

9/29/2011 10:35 AM [View Responses](#)

The ability to have funds to purchase the tools and equipment that they need to do all of are repairs.

9/29/2011 10:15 AM [View Responses](#)

have our own personal maintenance division to reduce the labor cost, parts are the cheapest part of the program, labor cost are double

9/29/2011 8:12 AM [View Responses](#)

Have newer rigs, oil samples every PM to determine viscosity, better records management.

9/29/2011 7:43 AM [View Responses](#)

Cut down on repeat repairs for same problem

9/28/2011 9:29 PM [View Responses](#)

to have more control.

9/28/2011 4:39 PM [View Responses](#)

We would have our own maintenance staff under our control with our standards in place.

9/28/2011 4:30 PM [View Responses](#)

I would like to have a larger budget to operate with. Our mechanic has to be creative when it comes to some repairs because of the lack of resources (money). Parts, brackets, and misc. items are often fabricated by the mechanic because of budgetary constraints.

9/28/2011 3:51 PM [View Responses](#)

To have an in house mechanic responsible for our maintenance and not to rely on either public works or an independent contractor.

9/28/2011 3:48 PM [View Responses](#)

Our work is done primarily in-house. A larger, modern facility would have a positive impact.

9/28/2011 3:47 PM [View Responses](#)

increase the budget. I don't know what you are doing with all this data. it seems to me that you have not narrowed down your research topic and you are going to be drowned in data that you will have a hard time applying to your research. Good luck.

9/28/2011 3:43 PM [View Responses](#)

Would not change anything. We currently have two full time fire mechanics who work out very well.

9/28/2011 3:36 PM [View Responses](#)

Ability to fund more preventative type service

9/28/2011 3:31 PM [View Responses](#)

To have our own department mechanic.

9/28/2011 3:24 PM [View Responses](#)

Make it mandatory that our mechanics become a classified position of emergency vehicle tech.

9/28/2011 3:22 PM [View Responses](#)

The turn-around time is agonizingly slow for much of our apparatus. We have literally faced situations, where Reserve Apparatus availability was exhausted down to zero due to the time required to repair front-line vehicles. Most of this is due to decreased number of mechanics, shop size too small and availability of parts

9/28/2011 3:04 PM [View Responses](#)

Better scheduling of preventive maintenance for our vehicles and more help for our mechanic.

9/28/2011 2:18 PM [View Responses](#)

I would like to have a repair facility with certified emergency vehicle technicians closer to our location.

9/28/2011 1:27 PM [View Responses](#)

No.

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How the program is budgeted.

9/28/2011 1:26 PM [View Responses](#)

Better turnaround time

9/28/2011 12:43 AM [View Responses](#)

Better trained/certified mechanics.

9/28/2011 12:43 AM [View Responses](#)

Include all equipment in contract to include small engine, emergency signalling, reflective stripping.

9/28/2011 12:17 AM [View Responses](#)

I wouldn't very happy with how everything is going.

9/28/2011 12:03 AM [View Responses](#)

I would prefer our maintenance provider was much closer to our community. The distance we have to travel to our maintenance facility is over 45 miles. We receive great service so I guess the drive is worth it in the long run.

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Communications with our Central Services Fleet.

9/28/2011 8:54 AM [View Responses](#)

Would contract all work to outside agency

9/28/2011 8:19 AM [View Responses](#)

In-house mechanic to manage and make repairs.

9/28/2011 7:08 AM [View Responses](#)

Back-up availability without going to outside vendor.

9/28/2011 7:07 AM [View Responses](#)

Better record keeping in the past. This is now improved and couples costs to repairs and maintenance..

9/28/2011 6:53 AM [View Responses](#)

I would ensure that mechs are EVT certified.

9/26/2011 12:02 AM [View Responses](#)

Keep EVT in fire department

9/26/2011 9:07 AM [View Responses](#)